

THE MAMMALS OF NORTH CAROLINA

FIRST APPROXIMATION

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This material is the first approximation account of the species of mammals of North Carolina. It is not considered to be a "publication". It is intended to be a guide or "handbook" for mammal enthusiasts, as there is no recent published book on the county distribution of mammals in North Carolina. The bulk of the distribution information is based on data gathered at the N.C. Museum of Natural Sciences and published as "A Distributional Survey of North Carolina Mammals", by Lee, Funderburg, and Clark, in 1982 (see Suggested References). Since then, the other major publication on mammals in North Carolina was "Mammals of the Carolinas, Virginia, and Maryland", by Webster, Parnell, and Biggs (1985).

As can be seen from the dates of the above publications, there has been a lack of information on the distribution and abundance of the mammals in the state over the last 28 years. There have been a number of field guides and reference books published in the past decade – e.g., Whitaker and Hamilton 1998; Bowers et al., 2004; Reid 2006; Kays and Wilson 2009 -- with range maps, but these are for the entire mammal fauna over the eastern half of the continent or the entire continent, and the range maps are small and with generalized shaded colors.

The junior author (Tom Howard) has already created three other websites on the distribution of the fauna of selected taxonomic groups in North Carolina, and the senior author (LeGrand) has written text for the species accounts; these groups are the Birds, Butterflies, and Odonates (Dragonflies and Damselflies). For the birds and the odonates, Howard has provided an input function that allows biologists/citizens to enter their own observational data, such as entering observations for first county records. The county distribution maps in this document (and on the mammal website – "Mammals of North Carolina: their Distribution and Abundance") represent a mix of specimens, photos, and unconfirmed sight records. To start the website project in motion, Howard entered records at the county level for all of the species in the Lee et al. (1982) atlas. LeGrand then added additional county records for species tracked by the N.C. Natural Heritage Program – these are on the program's rare list or watch list. In midsummer 2013, the mammal website was opened to the public, and enthusiasts entered dozens to several hundred observations and photos of new county records.

Note that this website and this First Approximation are not intended to be a compilation of all records for mammal species in the state. For example, there are thousands upon thousands of records in various museum and university specimen collections and on various game species websites or databases. The intended purposes of the records are to show the range of a species in the state, at the county level only. The website shows the level of confirmation (such as specimen, photo, sight record) for the county. It is our goal to obtain the highest levels of confirmation (specimen in a museum or a published photo) in a county; for many mammal species, sight identification can be difficult, as many species of mice or shrews, for example, are easily confused to the naked eye, and the majority of the species are active only at night or twilight. Nonetheless, sight reports are useful for delineating the ranges of these species, at least for easily identified species. Even so, each report of a species entered on this website will be reviewed for likelihood of correct identification; we hope that nearly all such reports will be accepted. Because this First Approximation is printed in black and white, with smaller range maps than are visible on the website, county ranges are limited to two possible symbols within a county – a solid black dot for a terrestrial species that is still extant in the state, and "x" for a species that is considered to be extirpated from the state. For species of the oceans and sounds, the dot symbol is replaced by a black square just off the county's coastline (for a stranding or record from the immediate coast), or a black rectangle for a region of the open ocean. A square is also used for such an aquatic species in a sound or other "inland" setting.

The common and scientific names follow those on the website of "Mammal Species of the World: Third edition" by Wilson and Reeder; this list has been followed by Kays and Wilson (2009). The ordering of species in this approximation follows the sequence of mammals of North America found on the Wikipedia website. Information

about the life history of the state's approximately 120 species of mammals (plus four others reported in the literature without documentation) are based in part on the field experience of the senior author (LeGrand), and in part on three excellent and recent field guides – Bowers et al. (2004), Reid (2006), and Kays and Wilson (2009); this information is given under several headings on each species account.

One purpose of this document is to encourage the reporting of sightings or other records of rare species to the Natural Heritage Program. This Program keeps computerized records on these rare species, in hopes of arranging protection for them. Rare species are noted by the "NC Status" and "US Status" lines beneath each species' range; see Page v of this document for rarity codes.

There has never been a statewide mammal organization or club in the state, with a journal for publication of noteworthy records, photos, and various studies. Instead, mammal enthusiasts have tended to be specialists in certain families or other mammal groups, instead of being "generalists" across all taxa as are most bird enthusiasts. Thus, there has been a group of enthusiasts conducting bat research through mist-netting and cave surveys; another group that studies whales, dolphins, and seals, both offshore and through strandings; another group that conducts trapping studies on small mammals such as shrews, moles, and small rodents; and another group, such as hunters and trappers, that are concerned mainly with game species such as carnivores, deer, and squirrels. It is hoped that the website and this publication can help to bring these groups of enthusiasts together.

Much still remains to be learned about the distributions and life histories of the mammal species in the state. This is especially prevalent for small species such as mice and shrews, for which there are few researchers in the state, and for which the average citizen would not be able to observe or identify for certain and thus supply the website with records. Thankfully, there is not an obvious geographical bias in the range maps for most species; for some animal groups, there is a tendency for more records from the more heavily populated counties, or counties along the coast. Even so, the mountains, the eastern Piedmont, the Sandhills, and the coastal counties tend to be more heavily studied than are counties in much of the central and western Piedmont, and the inner and central Coastal Plain. From the list in Appendix B, it is easy to pick out the counties that have had little mammal field work or observations.

SUGGESTED REFERENCES

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TABLE OF CONTENTS

Species	Page	Status *
Didelphidae - Opossum - [1 species in NC]		State Global
Virginia Opossum -- <i>Didelphis virginiana</i>	1	S5 G5
Dasypodidae - Armadillos - [1 species in NC]		
Nine-banded Armadillo -- <i>Dasypus novemcinctus</i>	2	W - SU G5
Castoridae - Beavers - [1 species in NC]		
American Beaver -- <i>Castor canadensis</i>	3	S5 G5
Dipodidae - Jumping Mice - [2 species in NC]		
Woodland Jumping Mouse -- <i>Napaeozapus insignis</i>	4	S4 G5
Meadow Jumping Mouse -- <i>Zapus hudsonius</i>	5	W - S3 G5
Myocastoridae - Coypu - [1 species in NC]		
Coypu -- <i>Myocastor coypus</i>	6	SE G5
Sciuridae - Squirrels - [7 species in NC]		
Eastern Gray Squirrel -- <i>Sciurus carolinensis</i>	7	S5 G5
Eastern Fox Squirrel -- <i>Sciurus niger</i>	8	W - S3 G5
Red Squirrel -- <i>Tamiasciurus hudsonicus</i>	9	S4 G5
Northern Flying Squirrel -- <i>Glaucomys sabrinus</i>	10	E - S2 E - G5
Southern Flying Squirrel -- <i>Glaucomys volans</i>	11	S5 G5
Woodchuck -- <i>Marmota monax</i>	12	S5 G5
Eastern Chipmunk -- <i>Tamias striatus</i>	13	S5 G5
Cricetidae - New World Mice and Rats, Voles - [16 species in NC]		
Rock Vole -- <i>Microtus chrotorrhinus</i>	14	SC - S3 FSC - G4
Meadow Vole -- <i>Microtus pennsylvanicus</i>	15	S5 G5
Woodland Vole -- <i>Microtus pinetorum</i>	16	S5 G5
Common Muskrat -- <i>Ondatra zibethicus</i>	17	S5 G5
Southern Red-backed Vole -- <i>Myodes gapperi</i>	18	S5 G5
Southern Bog Lemming -- <i>Synaptomys cooperi</i>	19	S3S4 G5
Eastern Woodrat -- <i>Neotoma floridana</i>	20	W - S3S4 G5
Allegheny Woodrat -- <i>Neotoma magister</i>	21	SC - S2S3 FSC - G3G4
Golden Mouse -- <i>Ochrotomys nuttalli</i>	22	S5 G5
North American Deermouse -- <i>Peromyscus maniculatus</i>	23	S5 G5
Oldfield Deermouse -- <i>Peromyscus polionotus</i>	24	SC - S1 G5
White-footed Deermouse -- <i>Peromyscus leucopus</i>	25	S5 G5
Cotton Deermouse -- <i>Peromyscus gossypinus</i>	26	S5 G5
Eastern Harvest Mouse -- <i>Reithrodontomys humulis</i>	27	S4 G5
Hispid Cotton Rat -- <i>Sigmodon hispidus</i>	28	S5 G5
Marsh Rice Rat -- <i>Oryzomys palustris</i>	29	S5 G5
Muridae - Old World Mice and Rats - [3 species in NC]		
Brown Rat -- <i>Rattus norvegicus</i>	30	SE G5
Roof Rat -- <i>Rattus rattus</i>	31	SE G5
House Mouse -- <i>Mus musculus</i>	32	SE G5
Leporidae - Rabbits and Hares - [3 species in NC]		
Marsh Rabbit -- <i>Sylvilagus palustris</i>	33	S5 G5
Eastern Cottontail -- <i>Sylvilagus floridanus</i>	34	S5 G5
Appalachian Cottontail -- <i>Sylvilagus obscurus</i>	35	SR - S3 FSC - G4
Talpidae - Moles - [3 species in NC]		
Star-nosed Mole -- <i>Condylura cristata</i>	36	S4 G5
Hairy-tailed Mole -- <i>Parascalops breweri</i>	37	S4 G5

TABLE OF CONTENTS

Species	Page	Status *
Talpidae - Moles - [3 species in NC]		State Global
Eastern Mole -- <i>Scalopus aquaticus</i>	38	S5 G5
Soricidae - Shrews - [9 species in NC]		
Northern Short-tailed Shrew -- <i>Blarina brevicauda</i>	39	S5 G5
Southern Short-tailed Shrew -- <i>Blarina carolinensis</i>	40	S5 G5
North American Least Shrew -- <i>Cryptotis parva</i>	41	S5 G5
Long-tailed Shrew -- <i>Sorex dispar</i>	42	SC - S3 G4
Smoky Shrew -- <i>Sorex fumeus</i>	43	S4S5 G5
American Pygmy Shrew -- <i>Sorex hoyi</i>	44	W - S3 G5
American Water Shrew -- <i>Sorex palustris</i>	45	SC - S3 G5
Cinereus Shrew -- <i>Sorex cinereus</i>	46	S4 G5
Southeastern Shrew -- <i>Sorex longirostris</i>	47	S4 G5
Vespertilionidae - Common Bats - [16 species in NC]		
Eastern Pipistrelle -- <i>Pipistrellus subflavus</i>	48	SR - S3 G3
Big Brown Bat -- <i>Eptesicus fuscus</i>	49	S5 G5
Evening Bat -- <i>Nycticeius humeralis</i>	50	S5 G5
Eastern Red Bat -- <i>Lasiurus borealis</i>	51	S5 G5
Hoary Bat -- <i>Lasiurus cinereus</i>	52	W - S3S4 G5
Seminole Bat -- <i>Lasiurus seminolus</i>	53	W - S3 G5
Northern Yellow Bat -- <i>Lasiurus intermedius</i>	54	SC - S1 G4G5
Rafinesque's Big-eared Bat -- <i>Corynorhinus rafinesquii</i>	55	SC - S3 FSC - G3G4
Townsend's Big-eared Bat -- <i>Corynorhinus townsendii</i>	56	E - S1 E - G3G4
Southeastern Myotis -- <i>Myotis austroriparius</i>	57	SC - S2 FSC - G3G4
Gray Myotis -- <i>Myotis grisescens</i>	58	E - S1 E - G3
Eastern Small-footed Myotis -- <i>Myotis leibii</i>	59	SC - S2 FSC - G1G3
Little Brown Myotis -- <i>Myotis lucifugus</i>	60	SR - S3 G3
Northern Myotis -- <i>Myotis septentrionalis</i>	61	SR - S3 PE - G2G3
Indiana Myotis -- <i>Myotis sodalis</i>	62	E - S1S2 E - G2
Silver-haired Bat -- <i>Lasionycteris noctivagans</i>	63	S4 G5
Molossidae - Free-tailed Bats - [1 species in NC]		
Mexican Free-tailed Bat -- <i>Tadarida brasiliensis</i>	64	S4 G5
Felidae - Cats - [2 species in NC]		
Bobcat -- <i>Lynx rufus</i>	65	S4 G5
Cougar -- <i>Puma concolor</i>	66	E - SX E - G5
Canidae - Wolves and Foxes - [4 species in NC]		
Coyote -- <i>Canis latrans</i>	67	S4 G5
Red Wolf -- <i>Canis lupus rufus</i>	68	SR - S1 E - G4G5T1
Gray Wolf -- <i>Canis lupus lupus</i>	69	SX G4G5T4T5
Red Fox -- <i>Vulpes vulpes</i>	70	S5 G5
Gray Fox -- <i>Urocyon cinereoargenteus</i>	71	S5 G5
Ursidae - Bears - [1 species in NC]		
American Black Bear -- <i>Ursus americanus</i>	72	S4 G5
Procyonidae - Raccoon - [1 species in NC]		
Common Raccoon -- <i>Procyon lotor</i>	73	S5 G5
Mustelidae - Weasels - [4 species in NC]		
North American River Otter -- <i>Lontra canadensis</i>	74	S4 G5
Long-tailed Weasel -- <i>Mustela frenata</i>	75	W - S3S4 G5
Least Weasel -- <i>Mustela nivalis</i>	76	SR - S2 G5

TABLE OF CONTENTS

Species	Page	Status *
Mustelidae - Weasels - [4 species in NC]		State Global
American Mink -- <i>Neovison vison</i>	77	S4 G5
Mephitidae - Skunks - [2 species in NC]		
Striped Skunk -- <i>Mephitis mephitis</i>	78	S4 G5
Eastern Spotted Skunk -- <i>Spilogale putorius</i>	79	SR - S2 G4
Phocidae - Earless seals - [4 species in NC]		
Hooded Seal -- <i>Cystophora cristata</i>	80	SAM G4G5
Harbor Seal -- <i>Phoca vitulina</i>	81	S2S3M G5
Harp Seal -- <i>Pagophilus groenlandicus</i>	82	S1M G5
Gray Seal -- <i>Halichoerus grypus</i>	83	S1M G4G5
Equidae - Horses - [1 species in NC]		
Feral Horse -- <i>Equus caballus</i>	84	SE GNR
Suidae - Pigs - [1 species in NC]		
Wild Boar -- <i>Sus scrofa</i>	85	SE G5
Bovidae - Bovids - [1 species in NC]		
American Bison -- <i>Bison bison</i>	86	SX G4
Cervidae - Deer - [2 species in NC]		
Elk -- <i>Cervus elaphus</i>	87	SC - S1 G5
White-tailed Deer -- <i>Odocoileus virginianus</i>	88	S5 G5
Delphinidae - Oceanic Dolphins - [17 species in NC]		
Killer Whale -- <i>Orcinus orca</i>	89	S1M E - G4G5
Rough-toothed Dolphin -- <i>Steno bredanensis</i>	90	S2M G4
Striped Dolphin -- <i>Stenella coeruleoalba</i>	91	S2M G5
Atlantic Spotted Dolphin -- <i>Stenella frontalis</i>	92	S4M G5
Spinner Dolphin -- <i>Stenella longirostris</i>	93	S1M G5
Clymene Dolphin -- <i>Stenella clymene</i>	94	S2M G4
Pantropical Spotted Dolphin -- <i>Stenella attenuata</i>	95	SUM G5
Short-beaked Common Dolphin -- <i>Delphinus delphis</i>	96	S3S4M G5
Common Bottlenose Dolphin -- <i>Tursiops truncatus</i>	97	S5M G5
Fraser's Dolphin -- <i>Lagenodelphis hosei</i>	98	SAM GNR
Atlantic White-sided Dolphin -- <i>Lagenorhynchus acutus</i>	99	S1M G4
False Killer Whale -- <i>Pseudorca crassidens</i>	100	S2S3M G4
Risso's Dolphin -- <i>Grampus griseus</i>	101	S3M G5
Long-finned Pilot Whale -- <i>Globicephala melas</i>	102	S1M G5
Short-finned Pilot Whale -- <i>Globicephala macrorhynchus</i>	103	S4M G5
Pygmy Killer Whale -- <i>Feresa attenuata</i>	104	SAM G4
Melon-headed Whale -- <i>Peponocephala electra</i>	105	SAM G4
Phocoenidae - Porpoises - [1 species in NC]		
Harbor Porpoise -- <i>Phocoena phocoena</i>	106	S3M G4G5
Kogiidae - Small Sperm Whales - [2 species in NC]		
Pygmy Sperm Whale -- <i>Kogia breviceps</i>	107	S2S3M G4
Dwarf Sperm Whale -- <i>Kogia simus</i>	108	S2M G4
Physeteridae - Sperm Whales - [1 species in NC]		
Sperm Whale -- <i>Physeter macrocephalus</i>	109	S3M E - G3G4
Ziphiidae - Beaked Whales - [4 species in NC]		
Gervais' Beaked Whale -- <i>Mesoplodon europaeus</i>	110	S2S3M G3
Blainville's Beaked Whale -- <i>Mesoplodon densirostris</i>	111	S2M G4

TABLE OF CONTENTS

Species	Page	Status *
Ziphiidae - Beaked Whales - [4 species in NC]		State Global
True's Beaked Whale -- <i>Mesoplodon mirus</i>	112	S1M G3
Cuvier's Beaked Whale -- <i>Ziphius cavirostris</i>	113	S3M G4
Eschrichtiidae - Gray Whale - [1 species in NC]		
Gray Whale -- <i>Eschrichtius robustus</i>	114	SXM E - G4
Balaenopteridae - Rorquals - [5 species in NC]		
Fin Whale -- <i>Balaenoptera physalus</i>	115	S2S3M E - G3G4
Sei Whale -- <i>Balaenoptera borealis</i>	116	S1M E - G3
Common Minke Whale -- <i>Balaenoptera acutorostrata</i>	117	S1M G5
Bryde's Whale -- <i>Balaenoptera edeni</i>	118	SAM G4
Humpback Whale -- <i>Megaptera novaeangliae</i>	119	S3M E - G4
Balaenidae - Bowhead Whales and Right Whales - [1 species in NC]		
North Atlantic Right Whale -- <i>Eubalaena glacialis</i>	120	S1M E - G1
Trichechidae - Manatees - [1 species in NC]		
West Indian Manatee -- <i>Trichechus manatus</i>	121	E - S1M E - G2
Appendix A (Undocumented species for North Carolina.)	A1	
Appendix B (NC Mammal Species per County)	B1	

Acknowledgments

A number of people have contributed several dozen or more records to this compilation, either directly through data entry into the website, or through data entry done by the authors. A few people are hereby acknowledged for other contributions to the website, such as review of records or species ranks. The authors wish to thank: Brian Bockhahn, Mary Kay Clark, Ed Corey, Tony DeSantis, Mary Frazer, John Funderburg, Lisa Gatens, Paul Hart, Scott Hartley, Derek Hudgins, Joshua Laerm, Seth Lambiase, David Lee, Donald Linzey, Dwayne Martin, Randy Newman, Joy O'Keefe, Colleen Olfenbuttel, Tom Padgett, Brian Patteson, Thomas Quay, Robert Rose, Heather Wallace, David Webster, Floyd Williams, and John Wooding.

DEFINITIONS

* Status:

NC: E = Endangered; legal status as designated by the NC Wildlife Resources Commission
T = Threatened; legal status as designated by the NC Wildlife Resources Commission
SC = Special Concern; legal status as designated by the NC Wildlife Resources Commission
SR = Significantly Rare; non-legal status as given by the NC Natural Heritage Program
W = Watch List; non-legal status as given by the NC Natural Heritage Program
US: E = Endangered; legal status as designated by the US Fish & Wildlife Service
T = Threatened; legal status as designated by the US Fish & Wildlife Service
PE = Proposed Endangered; designation by the US Fish & Wildlife Service
FSC = Federal Species of Concern; designation by the US Fish & Wildlife Service

Rank: NatureServe gives each plant and animal species a global rank of rarity, and each state Natural Heritage Program gives each species occurring within its borders a state rank of rarity. Thus, each species has a global and state rank. For each species, the S# varies from state to state, depending on rarity (number of records, threats, etc.).

State:

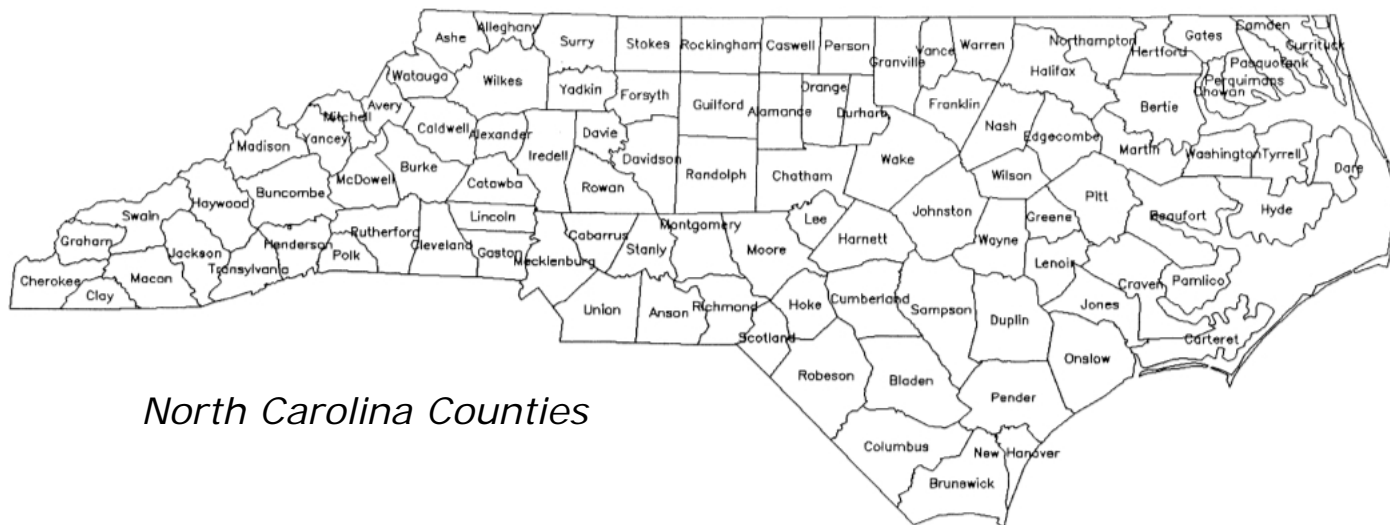
Rank Number of Extant Populations

- | | | |
|-----|----------|---|
| S1 | 1-5 | Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from North Carolina. |
| S2 | 6-20 | Imperiled in North Carolina because of rarity or because of some other factor(s) making it very vulnerable to extirpation from North Carolina. |
| S3 | 21-100 | Rare or uncommon in North Carolina. |
| S4 | 101-1000 | Apparently secure in North Carolina, though it may be quite rare in parts of its range, especially at the periphery. |
| S5 | 1001+ | Demonstrably secure in North Carolina, though it may be quite rare in parts of its range, especially at the periphery. |
| S#M | 1-1001+ | Migratory, or with extensive movements (used here only for aquatic species -- whales, dolphins, porpoises, seals, and manatee). |
| SU | 1+ | Status and abundance uncertain; need more information. |
| SA | 1? | Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species. |
| SE | 1-1001+ | Exotic; not native to North Carolina. |
| SH | 0 | Of historical occurrence, perhaps not having been verified in the past 20 years, and suspected to be still extant. |
| SX | 0 | Presumed extirpated -- believed to be extirpated in North Carolina. |

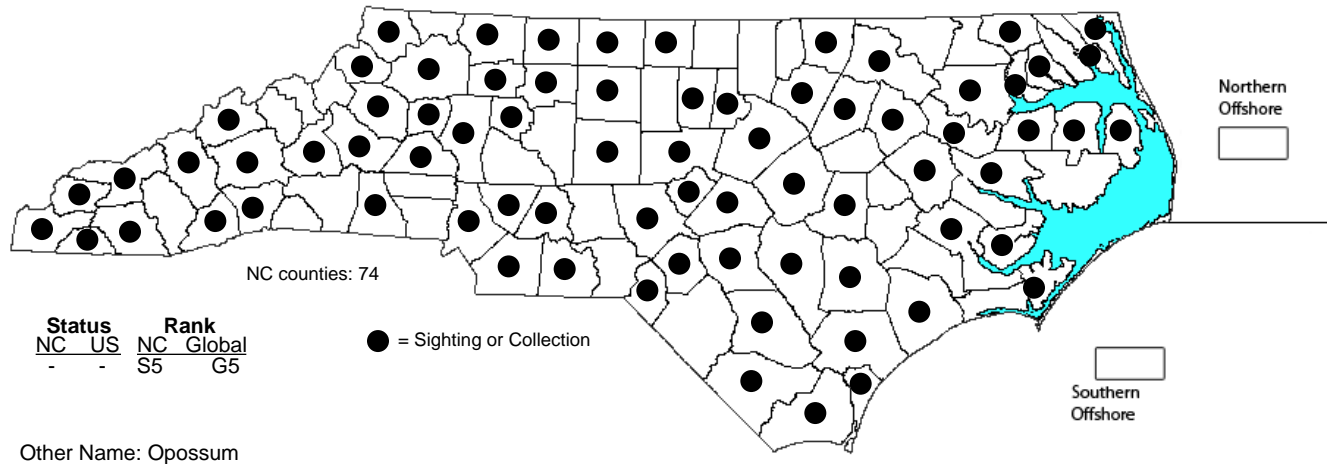
Global: Global ranks are similar to state ranks except "in North Carolina" is replaced by "globally", and "extirpation from North Carolina" is replaced by "extinction". Additional global ranks are:

T# --- The rank of a subspecies or variety. As an example, G4T1 would apply to a subspecies of a species with an overall rank of G4, but the subspecies warranting a rank of G1.

GNR --- Not ranked.



Didelphis virginiana Virginia Opossum



DISTRIBUTION: In NC, it occurs statewide, and undoubtedly occurs in all 100 counties. It might be absent on a few barrier islands, and in the highest mountains.

Occurs throughout the eastern 60% of the United States, and adjacent southern Canada, far southward into the Neotropics.

ABUNDANCE: Essentially abundant nearly across the state, but less common in the higher mountains and on some islands. It does occur on the Outer Banks and is numerous in the Buxton Woods area.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Occurs over a very wide range of habitats, favoring forested areas, more so in bottomlands than in overly dry sites; areas near fresh water are preferred. It prefers open woods, or near forest edges, and it forages in forests as well as in a variety of fields, brushy places, residential areas, and other habitats at night. It is often common in wooded suburban areas.

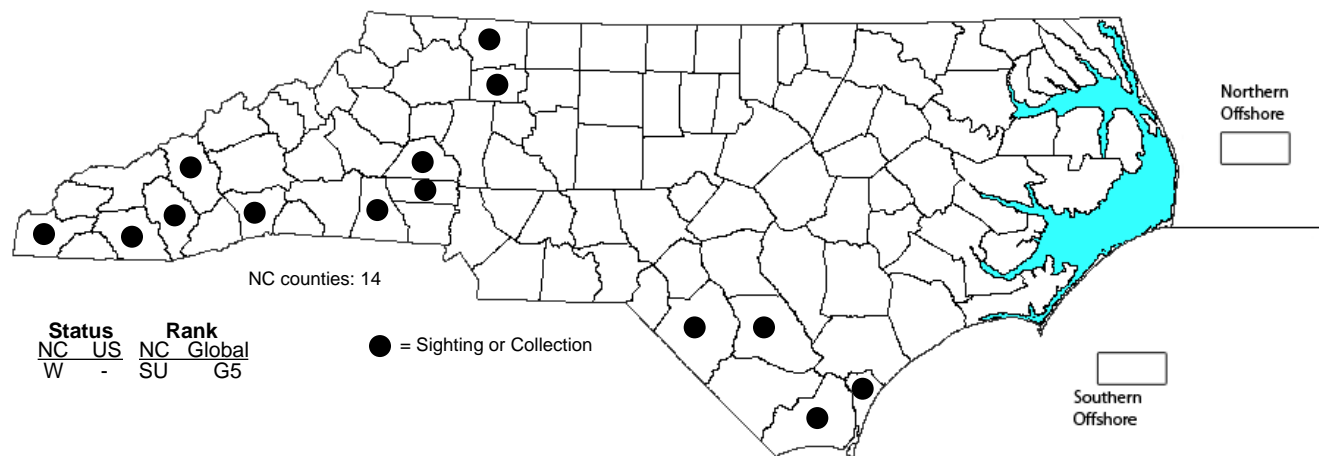
BEHAVIOR: Essentially nocturnal in activity, rarely active by day in the winter months. They climb fairly well, and spend some time in trees, mainly to escape. Nests are typically in burrows in the ground, under rocks, or in hollow logs, but they can be inside hollow trees or in knotholes in live trees. They often raid suburban yards at night, going after garbage and other food items.

COMMENTS: This is the only marsupial in the United States, and thus is unique from that aspect. Large numbers are killed by vehicles on roads at night, seemingly not even causing a dent in the very large population of the species. Though they can be hard to see in forested areas, as they are essentially nocturnal, homeowners can often spot them in their yards at night, especially where the yard is well-lit, and there is some food available for the opossums.

STATUS: Native

LIST TYPE: Official

Dasyus novemcinctus Nine-banded Armadillo



DISTRIBUTION: In NC, the range is poorly delineated, as some or many records likely relate to released individuals. However, records are scattered in the southern mountains, the Piedmont, and the southwestern Coastal Plain, mainly in counties bordering SC. Road-killed armadillos have been reported in Robeson, Brunswick, and Bladen counties in North Carolina, according to an article in the Fayetteville Observer (Jan. 31, 2010). We are also aware of a road-killed armadillo in Surry County. There are also a number of sightings from the southern mountains in the past few years.

This is a "tropical" species, extending from Mexico northward to KS and southern NC. The species is slowly expanding its range northward, and is a relatively new species to NC.

ABUNDANCE: Poorly known, as some records undoubtedly relate to releases. Very rare to rare, but steadily increasing, from the south to the north.

SEASONAL OCCURRENCE: Generally active all year, but apparently limits its above-ground activities in winter, as the Carolinas are at the northern edge of the range.

HABITAT: Requires sandy or other soft soils for its burrowing and foraging activities. Mostly found in open, sandy woods and brushy fields, but can occur in bottomlands and open fields. Tends to avoid areas with thick, clay-like soils.

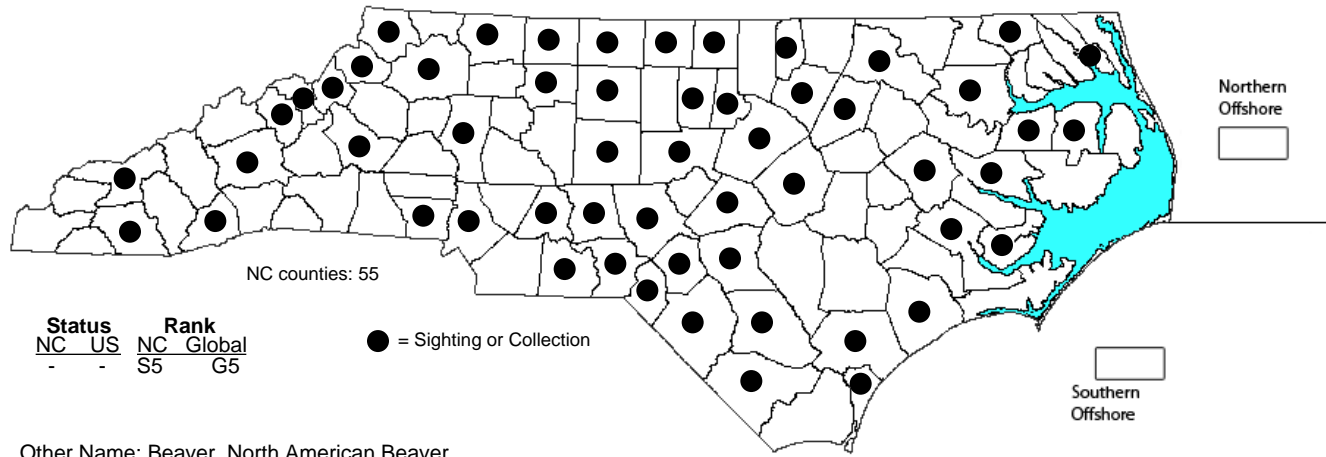
BEHAVIOR: This is a unique animal north of "the Border", as no other species in the United States has armor like it. They are mostly nocturnal in the warmer months, but can be abroad in daylight in winter. They have poor eyesight and can be fairly easily approached, but can quickly scurry away, at times quickly digging a hole to escape. Most of their time is spent in burrows, deep into the soil, with a large chamber for nesting. Armadillos give birth to four identical young, all of the same sex, a feature found only in a few species of armadillos, but nowhere else among mammals.

COMMENTS: Lee et al. (1982) state "Although armadillos are not established in North Carolina, a modest number have found their way into the southeastern part of the state where they have been released by interstate travelers who discover that the unique 'pets' they captured in Georgia and Florida can claw their way through boxes, bags, and other containers. Most winters are too severe for armadillos to survive this far north. We include this species in these accounts simply to clarify its status." As mentioned above, its status in the state is unsettled. Twenty to thirty years ago, it might have been called "Introduced", but there are many records now that probably relate more likely to animals moving northward out of SC, and thus the species should now be considered as being an "Official" member of the state list. Personnel at the N.C. Wildlife Resources Commission are concerned about armadillos digging holes in yards and thus damaging personal property. In fact, as of August 2013, the "Wildlife Resources Commission allows armadillos to be hunted year-round with no bag limit. Armadillos can be trapped during the regulated trapping season".

STATUS: Native

LIST TYPE: Official

Castor canadensis American Beaver



DISTRIBUTION: It occurs throughout NC, undoubtedly found in all counties (currently). It apparently became extirpated in the state by the early 1900's, due to relentless and uncontrolled trapping for its pelt. However, releases began in the state in the late 1930's, and it has still been increasing from multiple release points.

Occurs over nearly all of North America, with one of the widest distributions of any of our mammals.

ABUNDANCE: Common and widespread across the Coastal Plain and Piedmont, but less numerous in the mountains, mainly at the lower and middle elevations. Generally uncommon to common in the mountains. It was stocked at several places in the state by the N.C. Wildlife Resources Commission, and perhaps by private interests. It is now increasing over most of the state. However, it is rare to absent in tidal areas, and does not occur along the Outer Banks, and probably is absent from other coastal islands and nearby mainland.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Beavers create their own habitat by damming streams/creeks, though they also inhabit larger creeks and rivers and some lakes and ponds that are already present. Occurs along almost all types of freshwater habitats, but favored habitat is a fairly small woodland stream, within a modest floodplain, where it can create a moderate-sized pond by damming the creek.

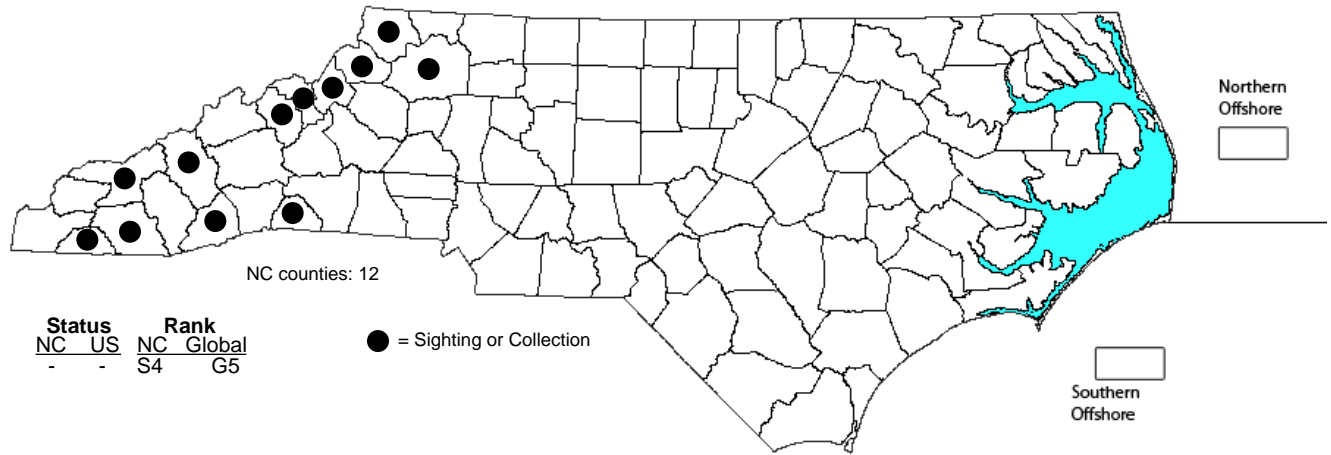
BEHAVIOR: Primarily nocturnal or crepuscular, but can be seen at times during the day. They are well-known to build mounded/conical lodges in ponds and lake margins, though in some areas their nests are built into the banks of streams and rivers, without a lodge. They often forage on tree bark in nearby forests and woodlands.

COMMENTS: No other mammal alters the natural landscape the way that the Beaver does, at least in the United States. Its ponds provide habitat for a wide array of frogs, turtles, birds, and many other species of plants and animals that live in pond and marsh habitats. However, Beavers do damage private property, by cutting down trees for dam- and lodge-building, and their ponds can kill trees by flooding them, and pond waters can flood fields. Even though it is still considered as a game/furbearer species, and thus can legally be trapped and taken, there are regulations about the numbers that can be harvested. With each passing decade, more and more beaver ponds are dotting the landscape in the state.

STATUS: Native

LIST TYPE: Official

Napaeozapus insignis Woodland Jumping Mouse



DISTRIBUTION: In NC, it is limited to the mountains; essentially only from 2,800 feet and higher.

The northeastern portion of North America only, from Labrador and Manitoba, south into the United States mostly down the Appalachians, to northern GA.

ABUNDANCE: Locally common at middle and high elevations, but uncommon in many areas.

SEASONAL OCCURRENCE: As with the Meadow Jumping Mouse, these two species are the only mice in the mid-Atlantic states known to hibernate.

HABITAT: Cool and somewhat moist forests, preferably where rocky. Favored are spruce-fir and spruce-hardwoods, but it also occurs lower where there is much rhododendron and water. It can occur in damp thickets and rocky seeps, but it seldom occurs in sunny and open wetlands where the Meadow Jumping Mouse is found.

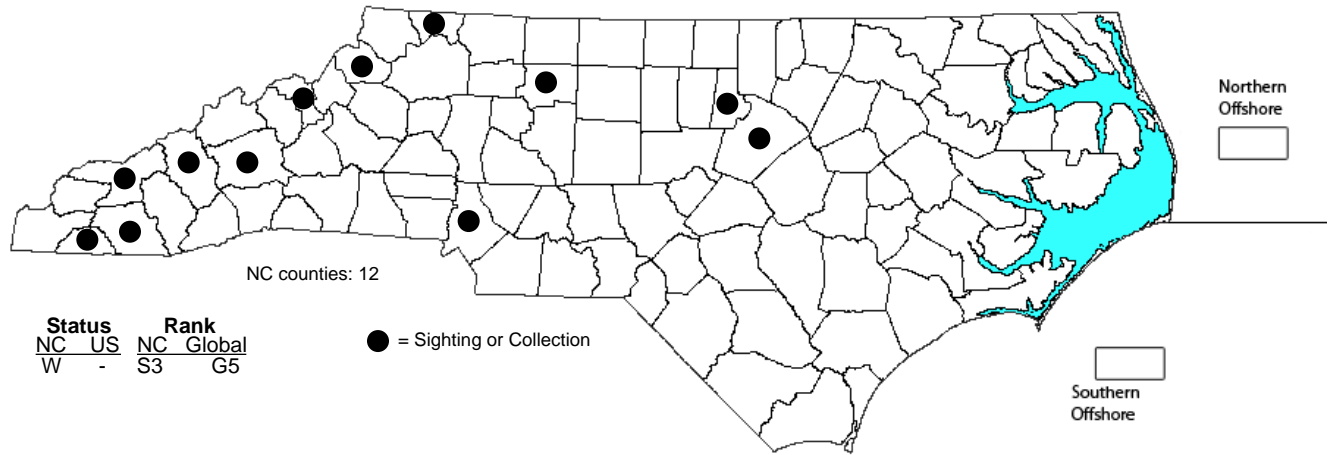
BEHAVIOR: Nocturnal, though can be active around dawn and dusk. They seldom make runways or tunnels, but they can climb somewhat readily.

COMMENTS: With the near loss of Canada hemlock in our mountains, it is possible that the species is declining, at least at middle elevations. As with the Meadow Jumping Mouse, the species is seldom seen by most people except by those who make special efforts, such as with pitfall trapping. This is one of the more colorful of the rodents, as it has a distinctive dark band of fur down the back, contrasting with golden-colored sides, and white underparts.

STATUS: Native

LIST TYPE: Official

Zapus hudsonius Meadow Jumping Mouse



DISTRIBUTION: In NC, it ranges throughout the mountains, and probably throughout the Piedmont, but the range is poorly known at least in much of the Piedmont.

A wide range from coast to coast, extending from southern AK east to Labrador, and south to the central parts of the United States -- NC, AL, and OK.

ABUNDANCE: Considered to be rare to uncommon across its range in the state, not necessarily more numerous in the mountains, though perhaps less local there. Not well known in most of the southeastern quarter of the Piedmont, where it might be absent in some counties.

SEASONAL OCCURRENCE: Webster et al. (1985) state that "Jumping mice are the only mice in the region [NC, SC, VA, and MD] which hibernate". Otherwise, active from about March or April at least into late November.

HABITAT: Typically in moist sunny areas -- moist meadows, marshy edges, damp brushy thickets, etc. They are not usually found in forested habitats, where the Woodland Jumping Mouse occurs, but it can occur at wooded edges or in some woods where the latter species is apparently absent; these wooded habitats are usually close to water. In any habitat, there must be dense herbaceous vegetation present.

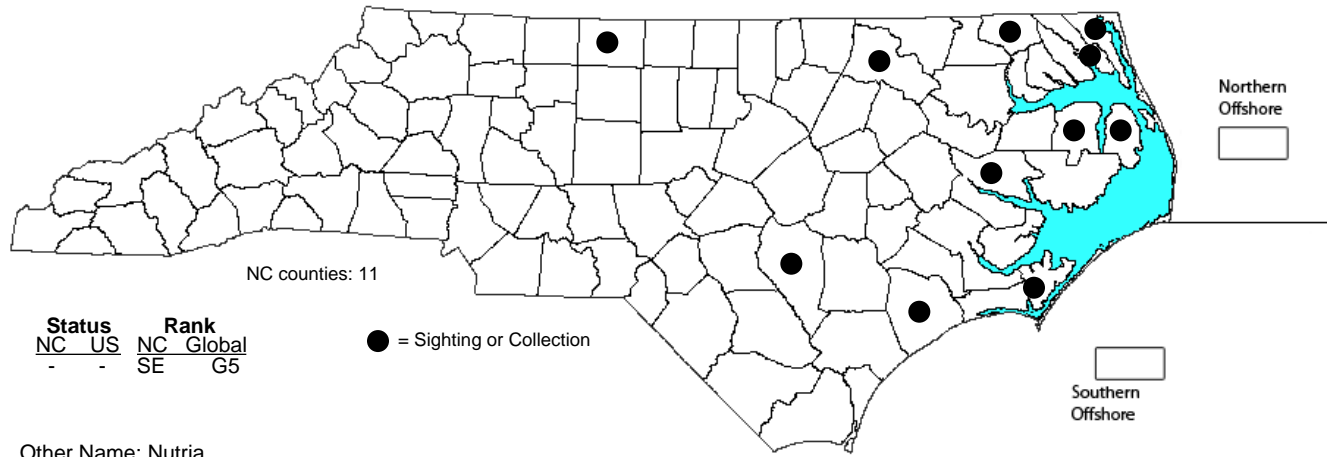
BEHAVIOR: Active mainly at night. They seldom make runways, and as they are generally solitary, biologists seldom find good evidence of the species that points to a Meadow Jumping Mouse. Most records are probably from trapping efforts, or animals found dead on the surface.

COMMENTS: Most field guides consider this species as "common" across its range. However, in the southeastern portion of the range, such as the Carolinas and VA, it is considered to be scarce, with relatively few records. The N.C. Natural Heritage Program has the species on its Watch List.

STATUS: Native

LIST TYPE: Official

Myocastor coypus Coypu



DISTRIBUTION: Lee et al. (1982) state that the Nutria, as it is better known in the United States, was "Originally released on the Outer Banks near Hatteras in 1941". From there it has spread to essentially all marshes in the Pamlico Sound/Albemarle Sound/Currituck Sound region, and is making its way southward along the coast and much farther inland. As of 1985, there was only one far inland record -- Rockingham County; however, it now occurs over most if not all of the Coastal Plain, and into the eastern Piedmont.

The native range is the southern part of South America. They have been introduced to several parts of the Gulf and Atlantic coasts, for trapping purposes for its fur, especially in LA and TX.

ABUNDANCE: Common to locally abundant in coastal marshes, south to Pamlico Sound. Less common farther south along the coast, and elsewhere in the Coastal Plain, where still mainly rare to uncommon. Scarce in the eastern Piedmont. Increasing in range and abundance in the state.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors areas of fresh and brackish marshes, where they consume large amounts of grasses. They also occur at lakes, ponds, and impoundments, as well as in salt marshes. Habitats tend to be sunny and well away from forested areas.

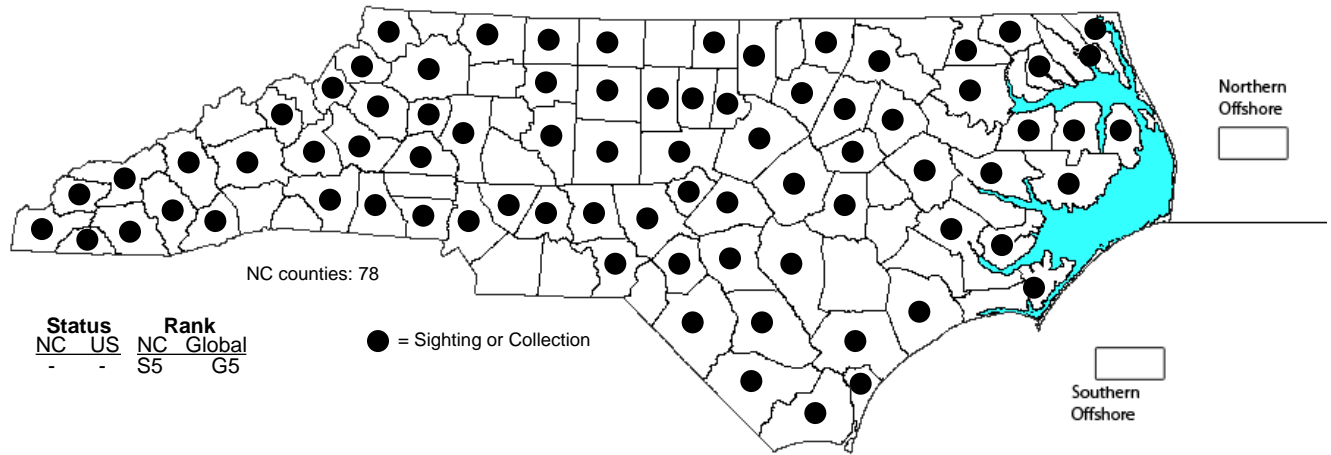
BEHAVIOR: Though active mainly at night, they frequently can be seen during the day, though they are not as active as after dark. They spend much time in the water, but frequently occur on the ground, and are often seen around the margins of impoundments and ponds. They create extensive systems of burrows, often weakening dikes of ponds and impoundments.

COMMENTS: Not surprisingly for a non-native mammal, the Nutria [Coypu is the official name of the species, and is the name applied to the species in its native range in the Neotropics] is a major pest almost everywhere it occurs. It competes with the Muskrat for food and habitat, and it denudes marshy areas, and thus competes with native species such as swans and geese for forage. The burrows in dikes weaken these man-made structures and can thus cause ponds and impoundments to drain or breach at the dike. They also forage on crops in nearby fields, doing financial damage to farmers.

STATUS: Introduced

LIST TYPE: Official

Sciurus carolinensis Eastern Gray Squirrel



DISTRIBUTION: In NC, it undoubtedly occurs in all 100 counties, including on the Outer Banks.

Occurs throughout the eastern United States, barely into adjacent Canada. It ranges all the way to the Gulf Coast.

ABUNDANCE: Abundant statewide, being somewhat less numerous in the mountains, especially so at higher elevations. One of the most widely distributed mammals in the state.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Most any habitat with mature trees, preferably hardwoods. Wooded parks, wooded residential areas, golf courses, open forests, and medium-growth forests are used, especially where the trees are large/old; favor mesic soil conditions. The favored habitat is a mature oak forest, with hickories and/or beech. Least numerous in dry, upland rocky woods, especially where there are pines; and not as numerous in swamps.

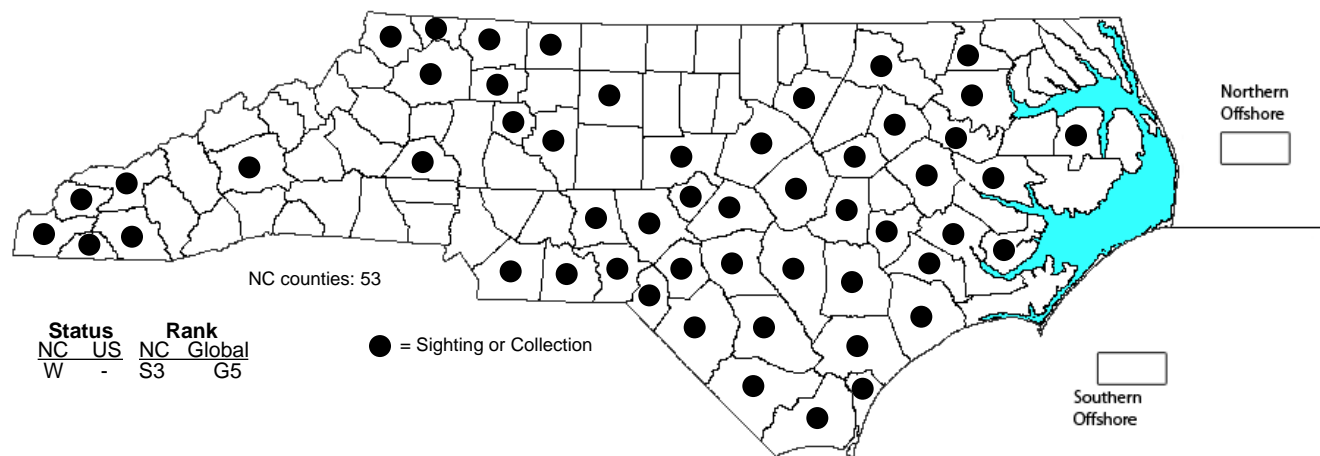
BEHAVIOR: Active during the day only. They are most active in the fall, when they can be seen gathering acorns and other nuts; they can be somewhat inactive in very cold weather. Nests are either in a tree cavity, or in a ball of leaves well out on a fairly large limb. The squirrels are often seen on the ground, though they spend most of their time in the trees.

COMMENTS: This is, by far, the most often seen mammal in the state, because they frequently live in close association with man and are active by day, in addition to their abundance. Thousands are probably road-killed every day in the state. They are a nuisance at bird feeders in the winter season. They are important for seed dispersal in oaks and beech, as Gray Squirrels bury large quantities of acorns and beech nuts in the ground, for later food consumption.

STATUS: Native

LIST TYPE: Official

Sciurus niger Eastern Fox Squirrel



DISTRIBUTION: In NC, has very "checkered" range, occurring mainly in the southern half of the Coastal Plain, but sporadically in the northern Coastal Plain, west of Albemarle Sound; generally absent on the Pamlico Peninsula and north of Albemarle Sound. Also present in the northwestern mountains and adjacent northwestern Piedmont, and formerly in the southwestern mountains, where poorly known at the present time. In the Piedmont, there are scattered records, mainly in the southern and central counties, being generally absent in the northern third to half of the province (except in the foothills).

Ranges over nearly all of the eastern United States, barely into Canada, but absent in New England; occurs south to the Gulf Coast.

ABUNDANCE: Generally fairly common in the Sandhills region, but uncommon and local eastward in the longleaf pine belt to about Wilmington (and southward, where it can be locally numerous). Oddly scarce northeast of Wilmington, even in longleaf pine habitats, northeast to Croatan National Forest. Declining over most of this part of the range. However, somewhat increasing in the northern half of the Coastal Plain, perhaps moving south from VA. Rare but possibly increasing in the Piedmont part of the range, and absent from many northern counties. Rare to uncommon, but increasing, in the northwestern part of the state, spreading south from VA and/or TN. Formerly rare but regular in the southwestern mountains, but very few recent records.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: In the southern half of the Coastal Plain, typically in dry to mesic longleaf pine stands, especially where burned and thus where the hardwood understory is not dense. Farther north of the longleaf pine belt, and elsewhere in the state, typically in forest or woodlands with mature hardwoods, and seldom near conifers. However, as the species spends much time on the ground, it favors a rather light shrub or understory zone. They have adapted to golf courses and some semi-wooded residential areas, especially in the Sandhills and in the Wilmington/Brunswick County areas.

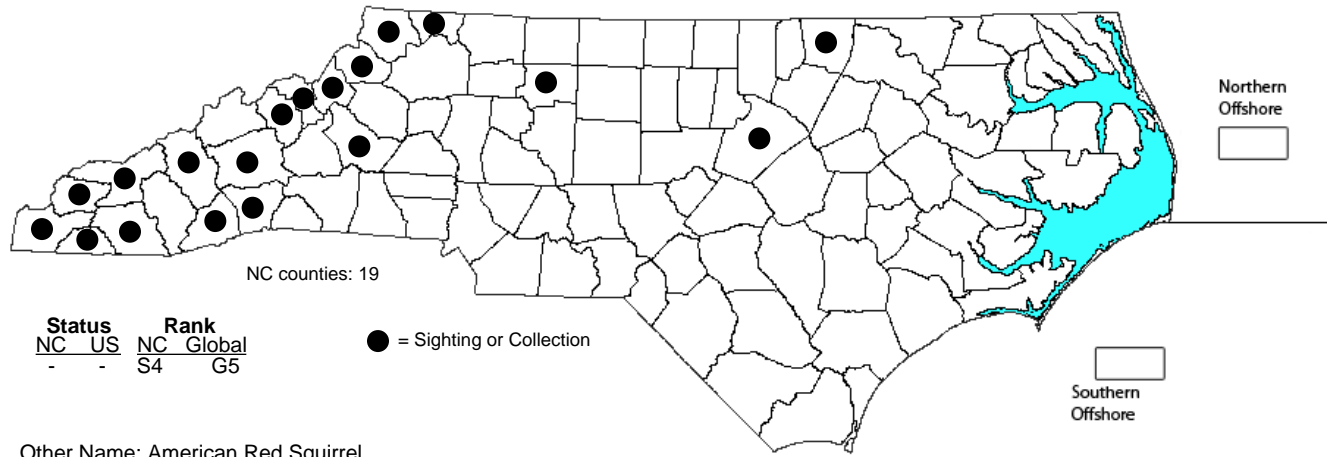
BEHAVIOR: Active during the day. The species is much more at home on the ground than is the Eastern Gray Squirrel, but does not normally stray too far from trees in which to escape. They are not as adept at clambering about trunks and limbs as the latter species. Nests are usually in tree cavities.

COMMENTS: Though it has long been a game animal, there have been many attempts to have the species of the state protected list, such as State Special Concern. However, a game animal cannot be State-listed, and the N.C. Wildlife Resources Commission has not moved the Fox Squirrel off the game animal list. The various populations around the state have been assigned by various authors to several subspecies. However, there is so much confusion about subspecies that there is little unanimity from mammalogists about what is here. Fox Squirrels can be seen most easily around some golf courses. Fire management of the species is still important in the longleaf pine zone, as fire suppression leads to more oaks in the understory, and such conditions favor the Gray Squirrel over the Fox Squirrel.

STATUS: Native

LIST TYPE: Official

Tamiasciurus hudsonicus Red Squirrel



DISTRIBUTION: In NC, it is strictly found in the mountain region, and apparently does not occur in adjacent Piedmont ranges such as the South Mountains. Several records well into the Piedmont are open to question or are likely released individuals; however, it does range well into the Piedmont in VA.

A very wide range from coast to coast, occurring over most of AK and Canada east to Labrador, and then south to the northern United States; in this country, it ranges far to the south in the Rockies and the Appalachians, but is scarce in non-mountainous regions.

ABUNDANCE: Generally common, to locally very common, though likely declining. Lee et al. (1982) state "Often abundant and conspicuous at high elevations." Webster et al. (1985) say that it is "abundant in mountainous habitats"; however, that does not seem to be the case in recent years. Perhaps the near total loss of Canada hemlock to the hemlock woolly adelgid has somewhat impacted numbers of the squirrel.

SEASONAL OCCURRENCE: Active all year.

HABITAT: Favors cool coniferous or mixed forests -- spruce-fir, spruce-hardwoods, or (formerly) hemlock-hardwoods. Also can occur in white pine stands, typically where mixed with hardwoods. Cool, moist sites are favored over dry sites.

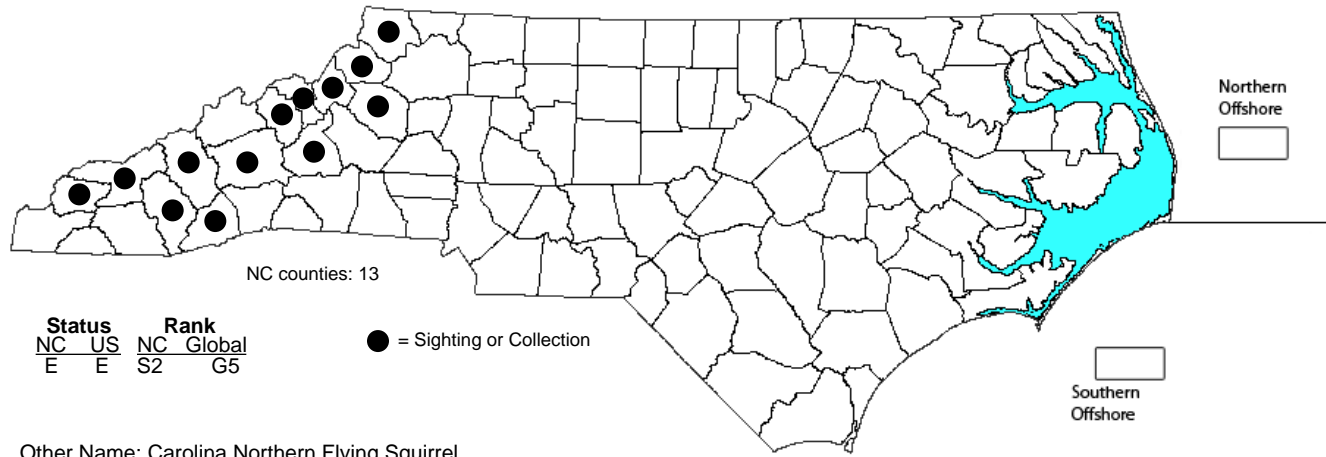
BEHAVIOR: Active during the day. Very noisy, making many sounds, with a long ratchet-ing trill/rattle being characteristic. As a result, it is often called "boomer". They have varied nest locations. Some are in tree cavities and hollows, whereas others are ball nests along limbs. Some squirrels even use burrows below ground. They are quite territorial, more so than other squirrel species.

COMMENTS: Though not well documented, the species does not seem to be abundant in most places in the mountains today. The death of most hemlock trees cannot but hurt local populations of Red Squirrels, as hemlock trees were a major feature of many population's habitat in the Appalachians. Fortunately, because it is noisy and active during the day, it easily becomes familiar to the layman and is one of the most frequently seen mammals in the higher elevations.

STATUS: Native

LIST TYPE: Official

Glaucomys sabrinus Northern Flying Squirrel



DISTRIBUTION: In NC, it is limited to the higher mountains, though it does occur at middle elevations as far southwest to Graham County. In most places in the state, found above about 4,000 feet elevation, and the majority of them occur above 5,000 feet.

Ranges from coast to coast from AK to Labrador, and south to the northern United States, extending considerably farther southward down several mountain chains; it ranges down the Appalachians to southwestern NC.

ABUNDANCE: Rare and somewhat local, being absent to very rare in counties along the VA border, but locally uncommon in a few higher mountain ranges, such as the Black Mountains and the Great Smokies.

SEASONAL OCCURRENCE: Active year-round, despite occurring in winter where the temperatures often range into single digits.

HABITAT: Favors spruce-fir forests or forests where spruce is mixed with hardwoods. Also occurs to a lesser extent in pure hardwood stands, or where mixed with other conifers, but these are typically in cool microclimates.

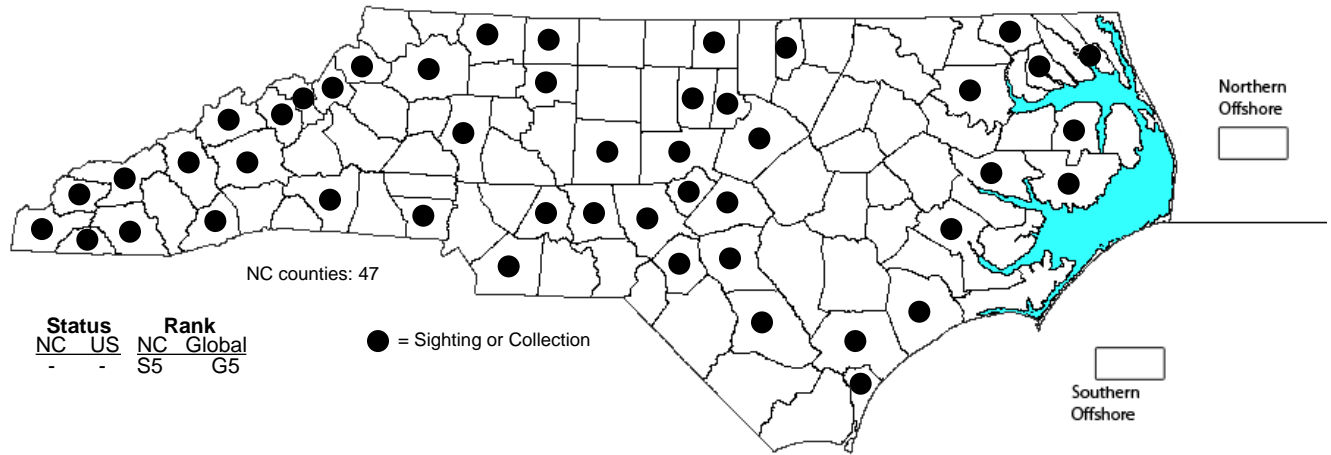
BEHAVIOR: Nocturnal in activity, apparently more active just after dusk and just before dawn. Utilizes woodpecker cavities or other holes/cavities in trees, mainly in dead trees, for roosting and nesting. They also utilize nest boxes placed in their habitat. As with the Southern Flying Squirrel, these animals glide from the upper parts of one tree downward to the base of another tree, rarely to the ground.

COMMENTS: Though the full species is not rare, the population in NC is a very rare subspecies -- *G. sabrinus coloratus* -- that occurs northward only to neighboring VA, and barely into adjacent TN. Not surprisingly, this subspecies, called the Carolina Northern Flying Squirrel, is Federally listed as Endangered.

STATUS: Native

LIST TYPE: Official

Glaucomys volans Southern Flying Squirrel



DISTRIBUTION: In NC, it is assumed to occur statewide, though it is quite secretive and not confirmed in a number of counties.

Occurs over most of the eastern United States and extreme southern Canada, south to the Gulf Coast.

ABUNDANCE: Though not often seen by the public, mammalogists consider it to be common, at least relatively so, over the entire state, well into the middle elevations of the mountains and also on the Outer Banks and other barrier islands with forests.

SEASONAL OCCURRENCE: Active year-round, though such activity is reduced in winter.

HABITAT: Generally in hardwood or mixed forest, of various moisture. Mature forests are preferred, as the squirrels roost and nest in old woodpecker holes and other tree cavities, which are more likely to be found in large trees. They often occur in wooded residential areas, and can utilize bird boxes or attics of homes for roosting or nesting.

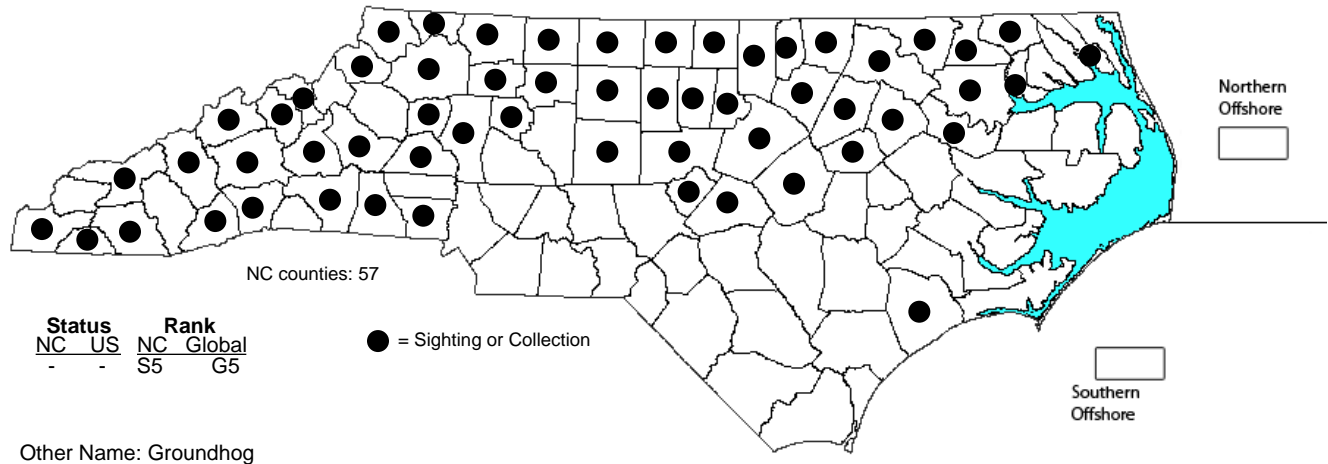
BEHAVIOR: Strictly nocturnal in activity. They are most easily detected by their high pitched squeaking or hissing calls. This and the Northern Flying Squirrel are well known for their gliding habits, which no other North American mammals show; glides are normally from high up in one tree toward the bottom of another tree, often 50 or more feet away.

COMMENTS: It is unfortunate that flying squirrels are nocturnal, unlike our three other squirrels, as their behavior is so spectacular. The species can occasionally be seen by tapping on a hollow tree with a woodpecker cavity, and hoping on a rare occasion that a squirrel will poke its head out of the hole. They can sometimes be seen at night in yards that are well lit, and they sometimes come to food left out on a balcony railing, for example.

STATUS: Native

LIST TYPE: Official

Marmota monax Woodchuck



DISTRIBUTION: In NC, it occurs throughout the mountains, nearly throughout the Piedmont, and into the northern third to half of the Coastal Plain, except absent in the extreme northeastern and coastal areas. Possibly absent in a few southeastern Piedmont counties, but the species is spreading southward in the Coastal Plain, and likely also in the Piedmont.

Quite widespread for a rodent, ranging from coast to coast, across most of the southern half of Canada and the northeastern United States. It ranges south to NC, AL, and AR.

ABUNDANCE: Common and widespread in the mountains; common in the northwestern Piedmont, but decreasing in abundance southward and eastward, but fairly common now to the northeastern part of the Piedmont. Scarce to possibly absent in Piedmont counties east of Charlotte and near or along the SC border. Uncommon but increasing in the northern Coastal Plain, spreading southward fairly rapidly.

SEASONAL OCCURRENCE: Active all year in the Coastal Plain, and probably parts of the Piedmont. However, hibernates in the mountains and probably so in much of the Piedmont.

HABITAT: Favors montane meadows and pastures, often near wooded edges and open woods. Farther eastward, often in wooded margins or even inside forests, but often around roadbanks and roadsides where there are vertical or near-vertical banks. In the Coastal Plain, they also occur in wooded areas, usually near edges, as well as along roadbanks. Thus, downstate they are more likely to be found near roadsides where there are banks (often man-made), as opposed to the mountains, where there is much more topography.

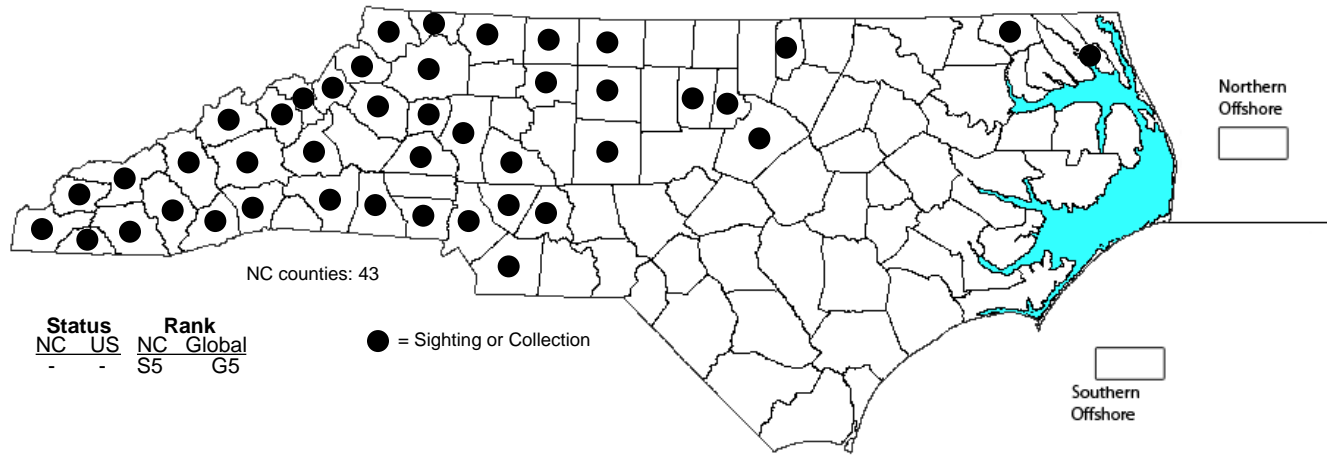
BEHAVIOR: Woodchucks are active most often in early morning and late afternoon, and sometimes at night. They are not as active in the middle of the day, particularly in the heat of summer. They are commonly seen feeding along grassy road edges, and many are killed on roads. They create extensive burrows, and the burrow openings are fairly conspicuous and often seen in forested banks.

COMMENTS: The species is clearly moving south and increasing in abundance, perhaps as many newer roads and highways now are raised on built-up ground, allowing the mammals to be able to burrow into the man-created banks. They are considered as pests in much of the range, such as in the mountains, where ranchers are fearful of their livestock breaking a leg by stepping into a woodchuck burrow.

STATUS: Native

LIST TYPE: Official

Tamias striatus Eastern Chipmunk



DISTRIBUTION: In NC, occurs throughout the mountains and the Piedmont, and sparingly into the far northern Coastal Plain. Absent over the Coastal Plain south of Albemarle Sound and apparently south and east of Wake County, and likely no records for the Sandhills.

Occurs over most of the eastern United States and southeastern Canada, but generally absent from the Coastal Plain; occurs mostly south to central GA and MS.

ABUNDANCE: Common to locally abundant throughout the mountains. Common to locally very common in some foothills ranges. However, mostly uncommon to locally common in the Piedmont, being quite scarce in many southeastern Piedmont locales. There is an odd "semi-disjunction" of the range in the Wake County area, where it is much more numerous than in some areas to the west in the Piedmont. Very rare to rare in the northwestern Coastal Plain.

SEASONAL OCCURRENCE: Active for most of the year, but hibernates in winter.

HABITAT: Mainly in hardwood forests with considerable numbers of rocks, within and under which they burrow. They also occur around brush piles, stumps, logs, etc., but normally do not favor dense herbaceous cover in the forest. Also occurs in other types of woodlands, such as those with rhododendron or mountain laurel. Chipmunks also occur in some residential areas, preferably where somewhat wooded.

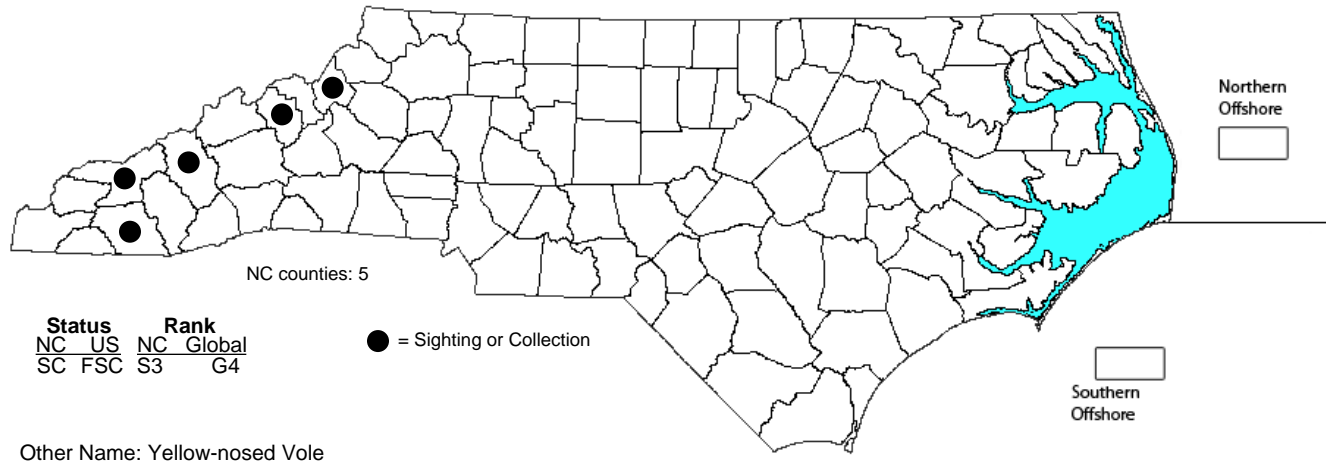
BEHAVIOR: Active during the day only, but likely somewhat more active early in the morning and late in the afternoon. They can be quite vocal, making loud chipping notes and other noises. In some places, they can come to bird feeders, picking up seeds such as sunflower seeds beneath feeders, and making burrows beneath buildings.

COMMENTS: This is a familiar mammal to many people in the state, especially so in the mountains, and at scattered places in the Piedmont. They can at times be seen scurrying across a road, or seen atop a stump, or feeding on the ground in yards. Chipmunk populations can be surprisingly local, such as being numerous in parts of Raleigh, but hard to find in nearby towns or forested areas with seemingly excellent habitat.

STATUS: Native

LIST TYPE: Official

Microtus chrotorrhinus Rock Vole



DISTRIBUTION: In NC, restricted to the middle and higher elevations of the mountains, typically over 3,800 feet. As a result, it may well be absent from the southwesternmost three counties (Graham, Clay, and Cherokee) in the state. It might also be absent in one or two other mountain counties.

Fairly restricted range, only from southeastern Canada south to the Appalachians, to southern NC. Generally absent in the United States except in the mountains.

ABUNDANCE: Uncommon within the higher portions of the Great Smoky Mountains National Park, but very rare to rare, and local, away from this park.

SEASONAL OCCURRENCE: Probably active all-year, but this is only speculation.

HABITAT: Mainly found in forested areas with many rocks -- boulderfields and talus slopes in the spruce-fir zone are favored. Other cool forests where there are moss-covered rocks are also inhabited. The species can also be found in rocky areas in pastures and weedy fields, as long as they are at high elevations.

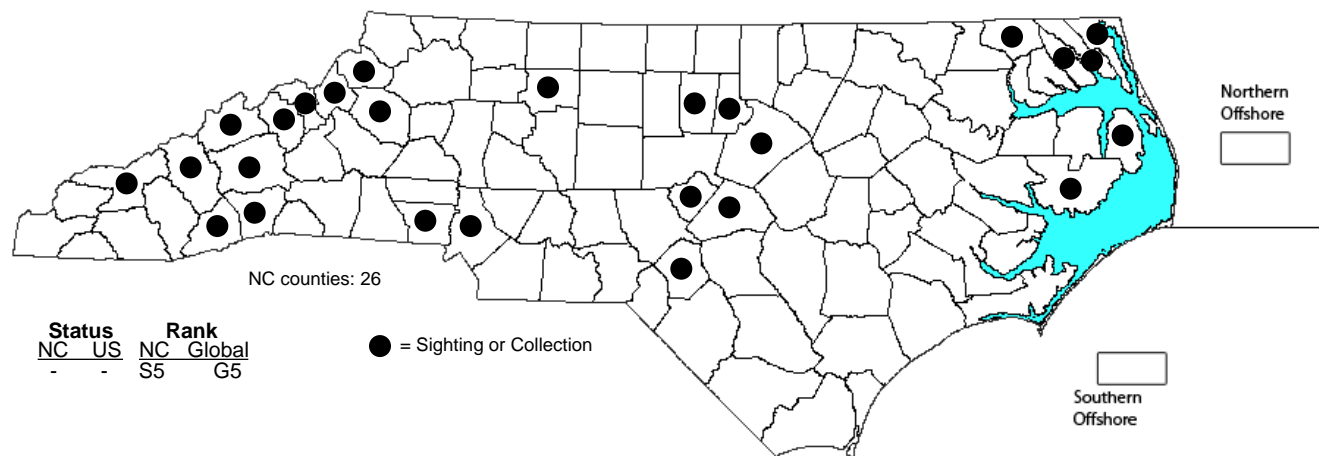
BEHAVIOR: Probably most active at night, but likely has some activity during the day. They are seldom seen far from rocks, where they tunnel in crevices or beneath the rocks.

COMMENTS: This is one of our poorer-known rodents, and it appears to have declined outside of the Great Smoky Mountains NP, as there have been very few such records in recent decades. However, it still seems to be at least locally numerous within the national park. Further declines are expected with climate change. The population that occurs in the southern Appalachians -- NC and TN north to WV -- is a different subspecies (*M. chrotorrhinus carolinensis*) from that occurring from northeastern PA northward.

STATUS: Native

LIST TYPE: Official

Microtus pennsylvanicus Meadow Vole



DISTRIBUTION: In NC, it occurs nearly throughout the mountains and Piedmont, and in the northern half of the Coastal Plain. There are a few records from the Sandhills portion of the Coastal Plain, but essentially absent eastward. In the mountains, it usually occurs below 4,000 feet elevation, and may well be absent from the extreme southwestern counties.

A very broad range, from coast to coast, and from AK and Labrador south to the central portion of the United States.

ABUNDANCE: Generally fairly common to common in the mountains, though perhaps somewhat local; however, very rare to rare in the southwestern mountains (including Great Smoky Mountains National Park). Fairly common in the northern Piedmont but less common in the southern Piedmont. It is rare to uncommon in the northern Coastal Plain.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Almost always in areas without forested cover; mainly in damp fields, wet thickets, marshy edges, and even in brackish marshes. It also occurs in drier fields and brushy areas.

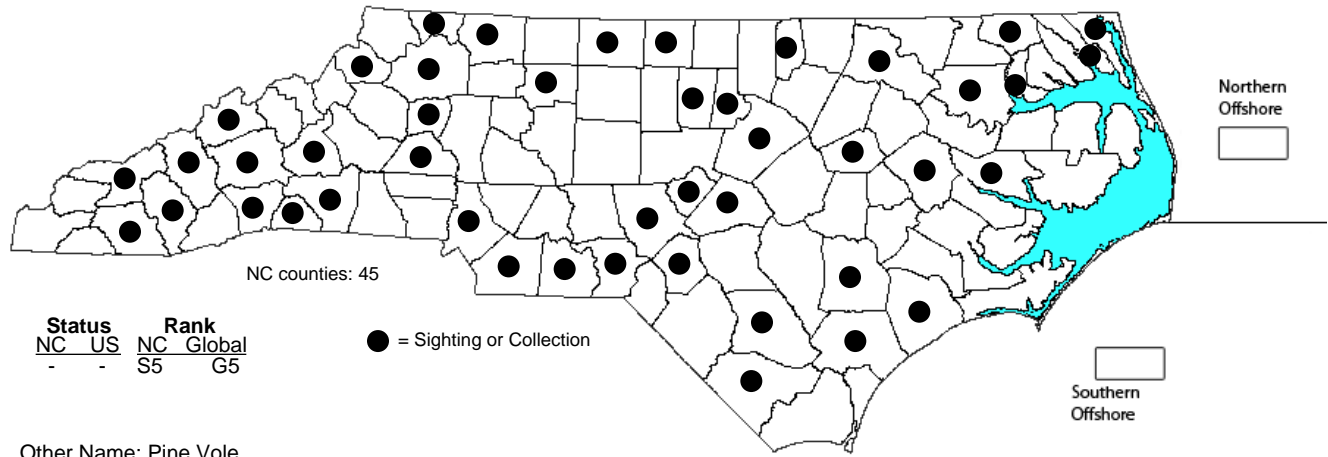
BEHAVIOR: Active both day and night. Creates networks of tunnels in dense grasses.

COMMENTS: The Meadow Vole is one of the most numerous mammals in North America, and it is abundant from VA northward. In the southeastern states, such as NC, it is considerably less numerous. Linzey (1995) indicates that there is just a single record for well-studied Great Smoky Mountains NP. This species can occasionally be seen scurrying across roads, like a small version of a Hispid Cotton Rat.

STATUS: Native

LIST TYPE: Official

Microtus pinetorum Woodland Vole



DISTRIBUTION: In NC, it is present all across the state, and likely occurs in all counties, though it might be absent near some coastal areas.

Occurs over nearly all of the eastern United States, from extreme southern Canada to the Gulf Coast, and west to the Great Plains.

ABUNDANCE: Various uncommon to common across the state, not obviously more numerous in one region over another.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: A wide variety of open woodlands and various types of fields, preferably in somewhat moist (but not wet) soils. They even occur in residential areas and gardens. Brushy areas with an abundance of leaf litter or dense grasses are favored.

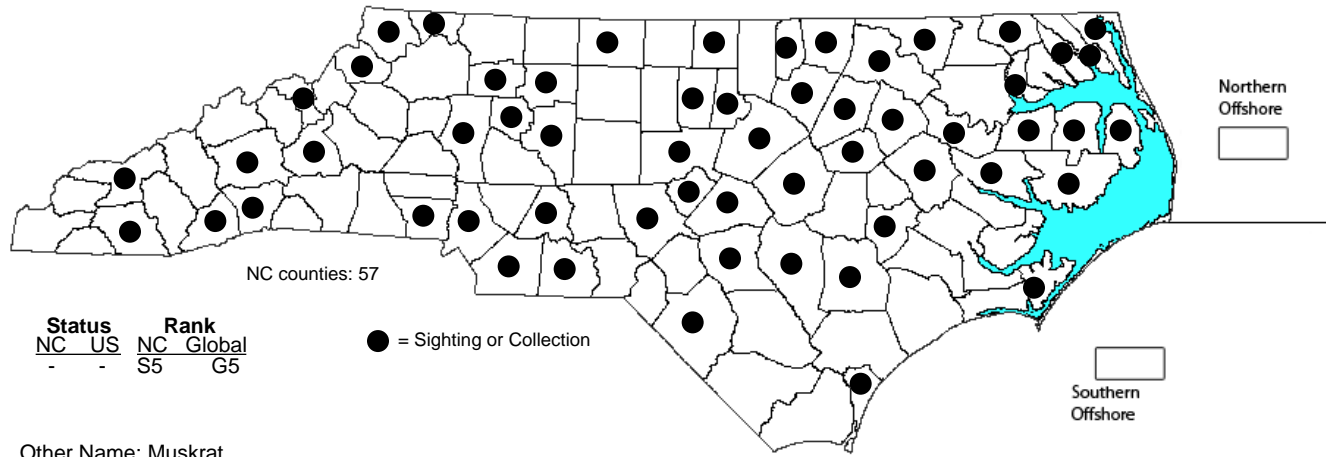
BEHAVIOR: Primarily nocturnal. Lives essentially in burrows, rarely seen on the surface. They are considered as pests because they often feed on roots of garden plants and orchard trees.

COMMENTS: It is probably least numerous in the far eastern counties, and might be locally absent in some such counties. There are apparently no records for coastal islands, especially from the Outer Banks.

STATUS: Native

LIST TYPE: Official

Ondatra zibethicus Common Muskrat



DISTRIBUTION: In NC, it occurs essentially statewide, but it might be absent in a few southeastern counties.

Ranges over nearly all of North America, south to the Gulf Coast, but absent in FL and the adjacent coastal areas of GA and SC.

ABUNDANCE: Abundant, at least locally, in the Tidewater and other north-coastal regions of the state. Generally common elsewhere in the Coastal Plain, except rare to uncommon in the southeastern quarter, and possibly locally absent there. Generally common in the Piedmont, and uncommon to common in the mountains, at least at lower elevations; somewhat local in these regions, as suitable habitat is not widespread in some counties.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Always in and around water -- fresh or brackish. Favors coastal brackish to fresh marshes; but also widespread around lake and pond margins, such as farm ponds, along streams and slow-moving rivers, and other areas of marsh and open water.

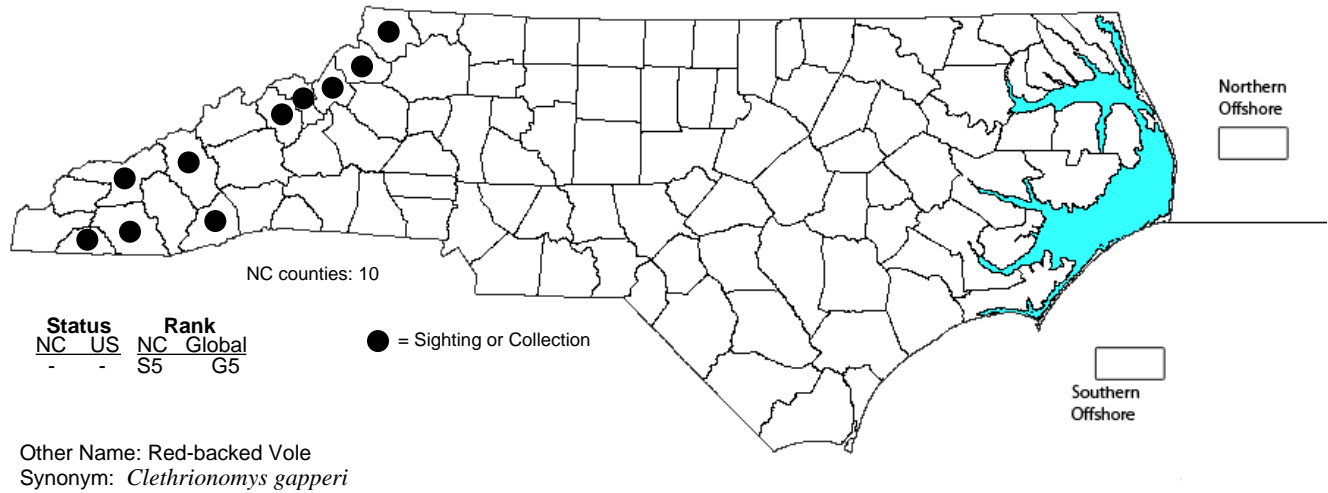
BEHAVIOR: Most active at night, but at times active during the day. In marshes, they build dens, like beavers but smaller, but in many areas of the state, especially farther inland, nests are typically tunnels/burrows, such as in dikes of ponds.

COMMENTS: The distribution in the southeastern Coastal plain is somewhat spotty, and a few counties there possibly lack records. It has adapted rather well to man, as many farm ponds have a pair of muskrats. The fairly rapid spread of the Coypu (= Nutria) into some habitats used by Muskrats does not seem to have negatively impacted Muskrats, but this might change in upcoming years, if Nutria keep spreading inland and southward.

STATUS: Native

LIST TYPE: Official

Myodes gapperi Southern Red-backed Vole



DISTRIBUTION: In NC, it occurs only in the mountain province, essentially in all counties there, at elevations above 2,500 feet.

An extensive range from coast to coast, ranging north to most of Canada, and south in major mountain ranges in the US -- the Appalachians and the Rockies; it is absent in most of the United States in non-montane regions.

ABUNDANCE: Abundant at higher elevations, and common at middle elevations, down to about 2,500 feet.

SEASONAL OCCURRENCE: Active year-round, even at its high elevations.

HABITAT: Favors cool and moist forests, with spruce-fir stands being preferred. Also occurs in other cool forests, such as (formerly) hemlock stands, cove forests, or other forests with much rhododendron. An abundance of logs, rocks, or roots are favored.

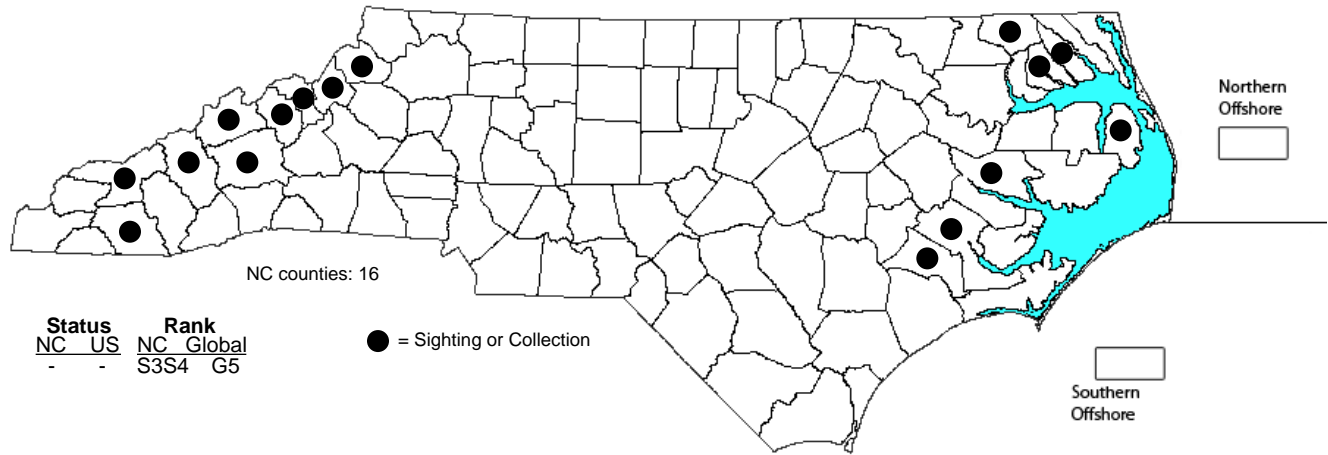
BEHAVIOR: Primarily nocturnal, but sometimes active by day. Utilizing existing runways or burrows, or utilizes natural cover of logs, rocks, etc., for foraging and roosting.

COMMENTS: This may well be the state's most abundant mammal within the spruce-fir zone. The subspecies in NC -- *carolinensis* -- is endemic to the southern Appalachians.

STATUS: Native

LIST TYPE: Official

Synaptomys cooperi Southern Bog Lemming



DISTRIBUTION: In NC, the range is bimodal, occurring only in the mountains and in the northeastern and far eastern Coastal Plain; seemingly absent from the Piedmont and the western Coastal Plain. Probably occurs in all mountain counties, though it could be absent in several in the far southwestern corner of the state.

Occurs over the northeastern quarter of the country, into southeastern Canada; ranges south to NC, northeastern AR, and KS.

ABUNDANCE: Rare to uncommon, and somewhat local (because of its spotty habitat) in the mountains; rare to uncommon in the Coastal Plain north of Albemarle Sound, but very rare or poorly known south to Jones and Craven counties.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: In the mountains, occurs in bogs, wet meadows, open wet grassy areas, and damp thickets, but avoids forests. In the Coastal Plain, it favors damp weedy fields and recent clearcuts, canebrakes, and marshy edges; not usually in shaded habitats.

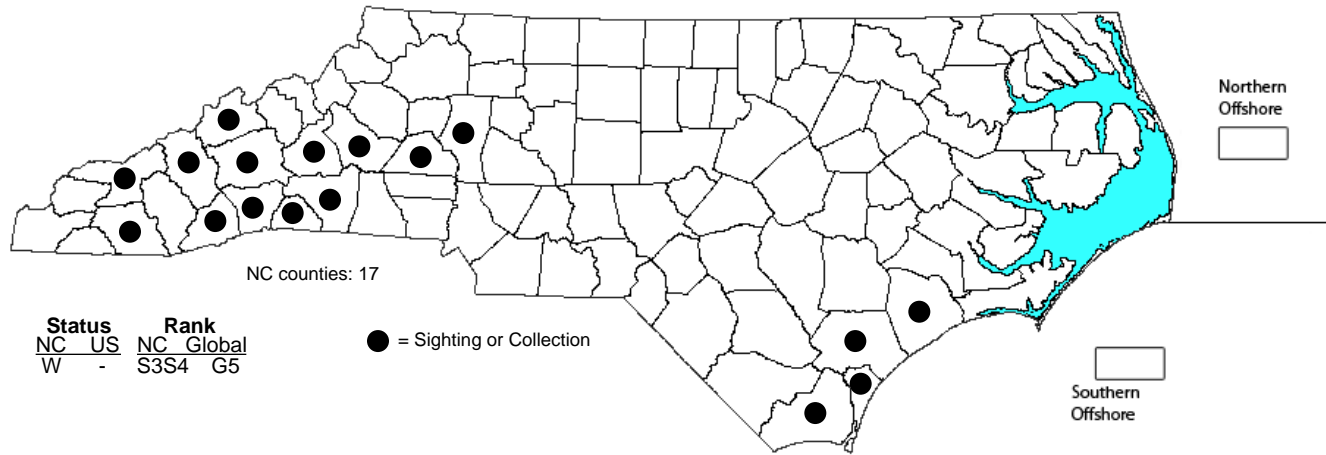
BEHAVIOR: Generally nocturnal, but at times active by day. Utilizes runways through dense grassy cover for movement and feeding, but has underground tunnels and burrows for roosting and nesting.

COMMENTS: This species has two subspecies in NC -- the mountain population is *S. cooperi stonei*, and the Coastal Plain population is *S. c. helaletes*. Though neither is truly rare in the state, the coastal population, known as the Dismal Swamp Southern Bog Lemming, is considered as Significantly Rare by the N.C. Natural Heritage Program. It actually can be locally numerous in the Dismal Swamp area, but there are just a few scattered records southward into Croatan National Forest.

STATUS: Native

LIST TYPE: Official

Neotoma floridana Eastern Woodrat



DISTRIBUTION: It has a bimodal range in NC, occurring only in the southern half of the mountains and the adjacent southwestern Piedmont foothills, and also at a few sites in the southeastern Coastal Plain.

Essentially the southeastern US, from southern NC west to SD, and south to eastern TX and FL.

ABUNDANCE: Generally uncommon in the southern half of the mountains, probably north to about Buncombe County, and very rare in the Hickorynut Gorge area in the foothills. Also apparently into the western Piedmont, though species identification there is uncertain. Very rare to rare, and local, in the extreme southeast, north to Carteret County (formerly), and Onslow County (currently).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: In the mountains, it occurs in rocky forested habitats, both dry and moist situations; talus slopes, boulders along and near streams, cliffs, and roadcuts all provide suitable micro-habitat. In the Coastal Plain, it favors floodplains and other moist hardwood forests; a favored site contains much dwarf palmetto. They sometimes use abandoned buildings for nest sites.

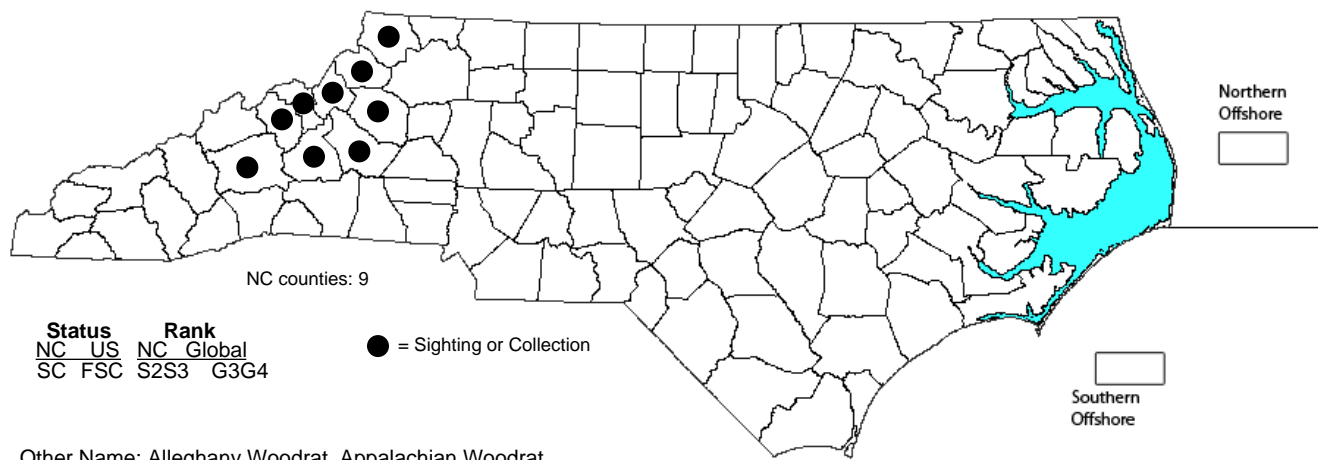
BEHAVIOR: Mainly or essentially nocturnal. They are noted for building large stick and leaf nests, often to at least 1 foot high and wide. Shiny objects can often be seen in these nests.

COMMENTS: The northern portion of the original Eastern Woodrat species was split off in 2001 as the Allegheny Woodrat (*Neotoma magister*). As the two species are presumably allopatric (do not overlap) in the range, the separation in NC, apparently around Madison, Buncombe, McDowell, and Burke counties, plus eastward into the Piedmont, is difficult to assess because they are practically impossible to identify by visual means and because the nest structures are probably identical. Records have been increasing for this species in the mountains, most likely due to increased field work. However, the Coastal Plain population is State listed as Threatened and is in considerable decline, owing to habitat destruction. This coastal population belongs to the *N. f. floridana* [i.e., the nominate] subspecies, whereas the mountain population belongs to a different subspecies -- *N. f. haematoreia*.

STATUS: Native

LIST TYPE: Official

Neotoma magister Allegheny Woodrat



DISTRIBUTION: In NC, it occurs in the northern half of the mountains, apparently south only to Buncombe County. It also occurs in the Piedmont foothills, at least in the northern foothills. As this species was split off from the Eastern Woodrat fairly recently (2001), the southern extent of the Allegheny's range in the NC mountains is not clear, as the two species are practically identical visually.

A very small range, and only in the Appalachians -- northern NJ and northeastern PA, and formerly CT and NY, south to northern GA and western TN.

ABUNDANCE: Rare to uncommon, but seemingly rather widespread, in the northern mountains; likely very rare in the Piedmont.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Almost always in rocky areas in upland forests, typically where somewhat dry. These rocky places can be in natural talus slopes, boulders, rocks along forested streams, and even roadcuts. Most sites are in hardwood forests.

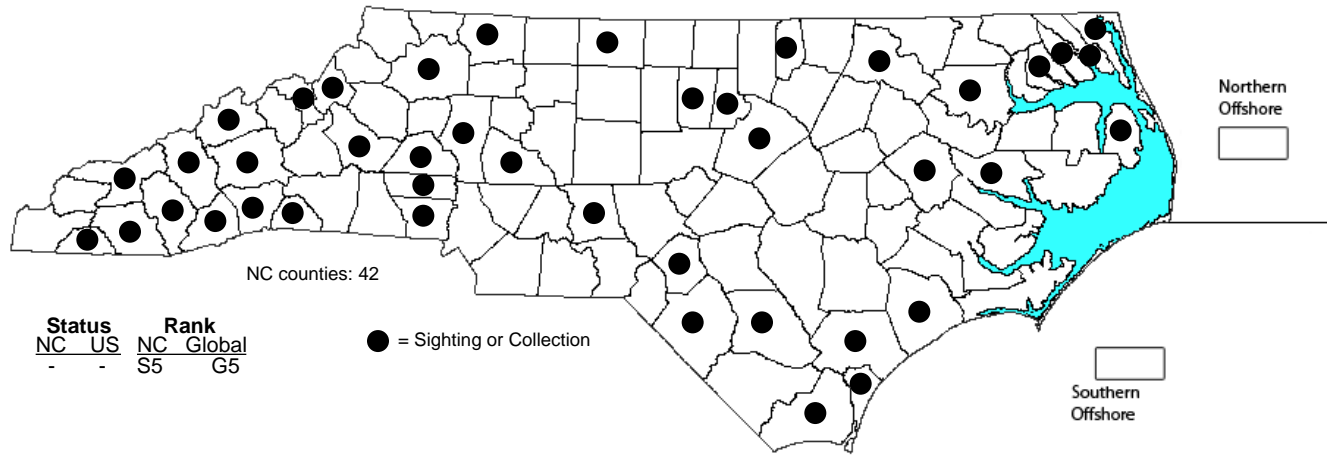
BEHAVIOR: Mainly nocturnal. Woodrats are famous for building fairly large stick nests, mixed with leaves and other objects, and typically placed in a crevice between rocks. However, some nests are placed at the base of a tree or base of a cliff. Nests are often a foot or more high or across, and are often quite conspicuous, especially if shiny man-made objects are in the nest.

COMMENTS: This species is a Federal Species of Concern and is State Special Concern. The northern populations (north of NC) are severely declining; it formerly occurred in CT and NY. No such declines have been noted in NC, but with climate change, the species might become less common in future years. In addition, this species and the similar Eastern Woodrat, which occurs immediately to the south in the mountains and foothills of NC, build very similar nests; as most reports of Alleghenies are of nests, species identification is based almost solely on geography, and not on specimens. This makes it nearly impossible to determine the range boundary between the two species.

STATUS: Native

LIST TYPE: Official

Ochrotomys nuttalli Golden Mouse



DISTRIBUTION: In NC, it ranges essentially statewide, and likely occurs in all counties, but it is scarce toward the coast.

Strictly the southeastern states, ranging north to VA, WV, and MO, and west to eastern TX.

ABUNDANCE: Generally common in the mountains and Piedmont; common over much of the Coastal Plain, but less common toward the coast, and might be absent on coastal islands.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Strictly in forested areas, favoring somewhat moist hardwoods, often near edges of the forests. Favored habitats are bottomlands, especially with many vine and brier tangles, or large stands of cane. Also occurs in upland forests, particularly so in the mountains, where floodplain forests are rare. Occurs also in swamps, or in pine stands where there is an abundance of evergreen vine cover; places with much Japanese honeysuckle growing up into shrubs and small trees, or dense areas of greenbriers, make for good micro-habitat conditions.

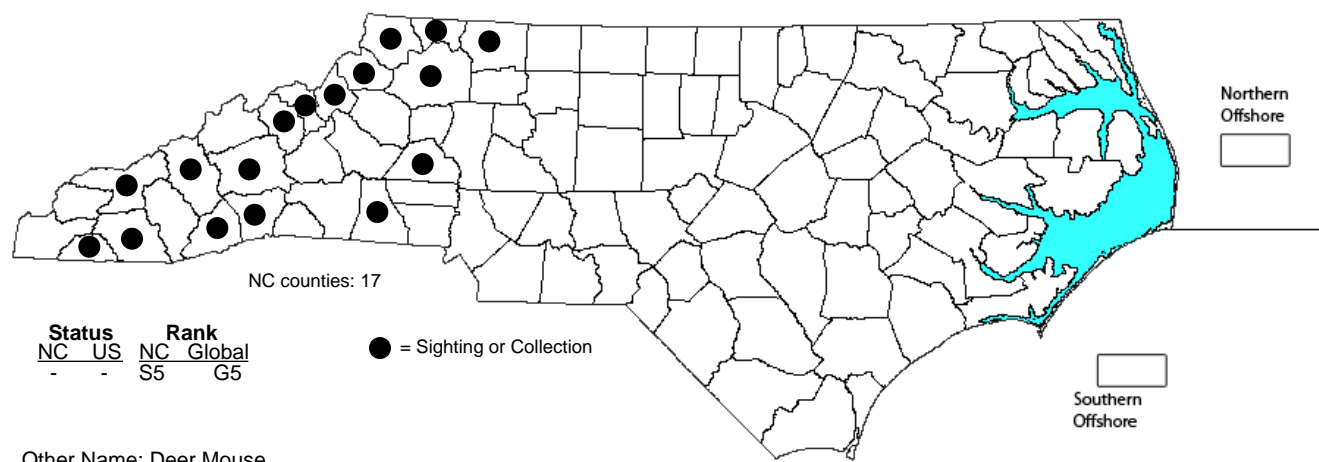
BEHAVIOR: Essentially nocturnal. Makes round nests of leaves, typically 4-6" across, placed several to many feet above the ground, in dense vine cover; typically the nests are about 3-6' above ground. The species is an agile climber, and spends most of its time off the ground.

COMMENTS: This species is quite different in its habits and behavior from the deermice (genus *Peromyscus*), and the Golden Mouse is monotypic. There are two subspecies in the state.

STATUS: Native

LIST TYPE: Official

Peromyscus maniculatus North American Deermouse



DISTRIBUTION: In NC, it is essentially limited to the mountain region, and there found mostly from 3,500 feet and higher, though ranging down to about 2,000 feet in winter. There are only a few records for the western Piedmont, where questions remain about regular occurrence.

By far the most wide-ranging native mouse that occurs in North America, occurring from coast to coast and from northern Canada south to the southern Appalachians and down into Mexico. It thus is absent from most of the Piedmont and Coastal Plain provinces.

ABUNDANCE: Abundant in the mountains, mostly above 4,000 feet; less numerous at lower elevations, where it broadly overlaps with the White-footed Deermouse. Very rare, apparently, in the western Piedmont, where it is uncertain if it is a resident, or a stray from the mountains.

SEASONAL OCCURRENCE: Active year-round. In the Great Smoky Mountains National Park, it has been recorded below 2,000 feet in winter or early spring, but in summer the same site was occupied by only the White-footed (Linzey 1995), suggesting that there is some altitudinal movement to lower elevations in the colder months.

HABITAT: Strictly in cool forests, preferably where moist. Favored are spruce-fir or spruce-hardwoods, but cove forests or hardwood forests with much rhododendron cover are also utilized. It is seldom found in dry forests, and hardly even in fields and brushy habitats.

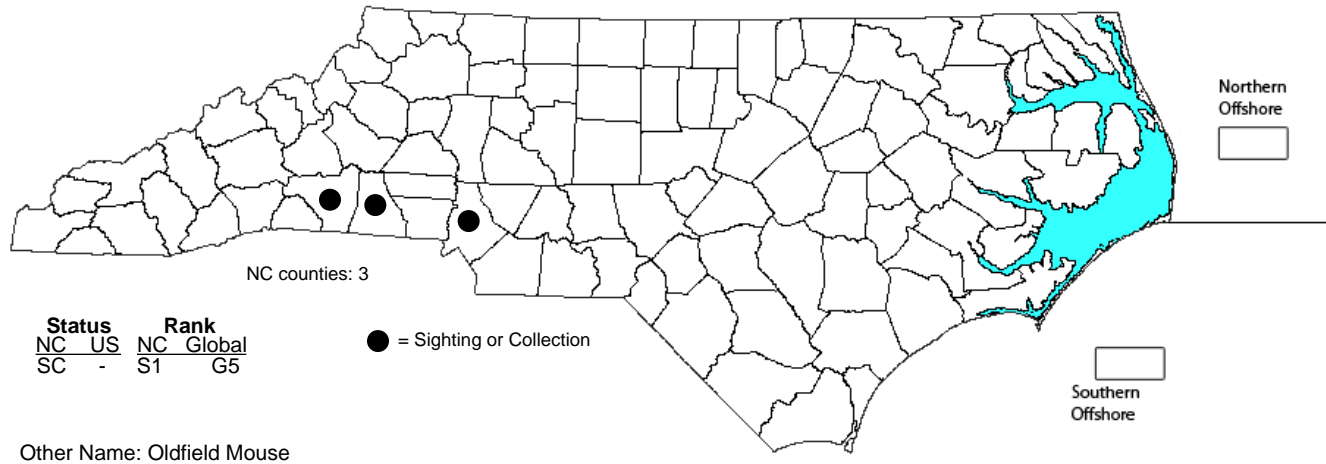
BEHAVIOR: Essentially nocturnal. Spends much time in areas with rocks, logs, and other heavy cover on the forest floor.

COMMENTS: This is possibly the most abundant mammal in the state at the middle and higher elevations in the mountains, along with the Southern Red-backed Vole and possibly one or two shrews. There is a moderate range overlap with the White-footed Deermouse, especially from about 2,000 to 4,500 feet elevation; both can occur in the same habitats. The few records from the Piedmont, east of the higher foothill ranges, are puzzling. Does the species occur at all in the South Mountains or the Brushy Mountains? Records for those mountain ranges do not appear on the Lee et al. (1982) range map.

STATUS: Native

LIST TYPE: Official

Peromyscus polionotus Oldfield Deermouse



DISTRIBUTION: In NC, it is known only in the extreme southwestern Piedmont, in counties bordering SC -- records only from Rutherford, Cleveland, and Mecklenburg counties.

A small range for a mouse, being limited to the southeastern states, north to extreme southern NC and TN, east to central SC, and west to AL.

ABUNDANCE: Though it can be locally common in SC, it is quite rare in NC, as well as poorly known. It is probably slowly expanding its range northward. There are just a few records for the state, with the most recent being in a protected site in northern Mecklenburg County.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Strongly favors brushy and weedy grasslands and fields, in sandy soils, as it is a burrowing species. It thus tends to avoid wet habitats, and it also typically avoids forests. It can occur along the sandy borders of cultivated fields, as well as overgrown sites. It also occurs in sandy roadsides, and possibly might be spreading northward along highway margins.

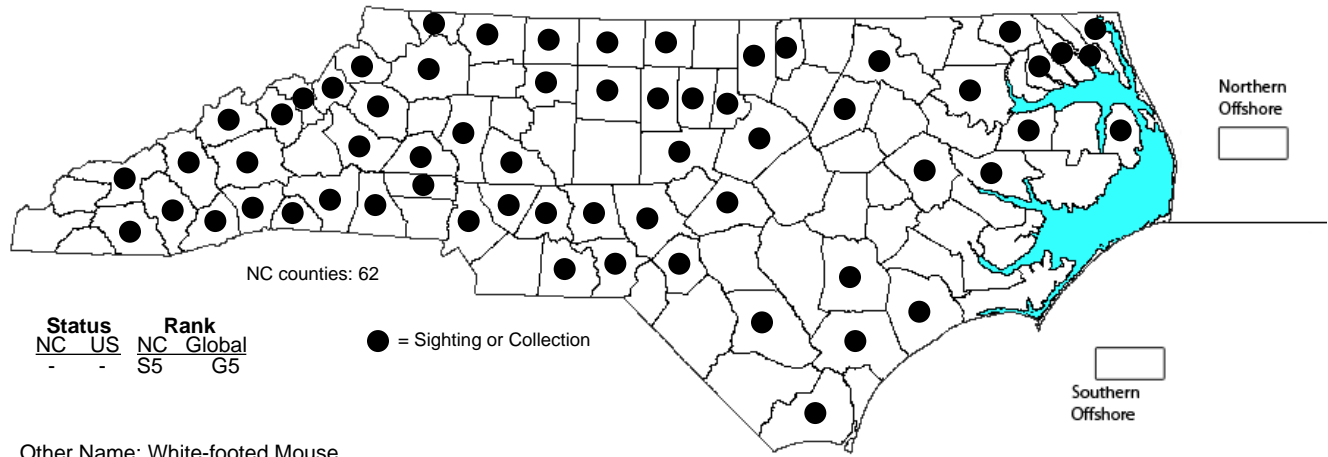
BEHAVIOR: This species spends most of its time underground, in a burrow, unlike most other mice in the state. Perhaps for that reason, it isn't well known across its overall range. Almost certainly nocturnal in its activity.

COMMENTS: The first record for the state did not come until 1976, from Rutherford County, as reported in Lee et al. (1982). Since then, it has been noted from two additional counties, to the east, but still in the Piedmont within about 30 miles of the SC line. As it is numerous in the Sandhills region of SC, it might be expected in the Sandhills region of NC in upcoming years.

STATUS: Native

LIST TYPE: Official

Peromyscus leucopus White-footed Deermouse



DISTRIBUTION: In NC, it is nearly statewide, but appears to be absent from many or most of the southeastern Coastal Plain counties, though there is at least one record each from Brunswick and Pender counties.

Occurs over nearly all of the eastern and central US, and barely into southern Canada. It ranges south to southeastern NC, LA, and TX, but is absent in the extreme Southeast (FL and adjacent coastal areas).

ABUNDANCE: Generally abundant over the range in NC, except less numerous near the coast, and more scarce in the southeastern quarter of the Coastal Plain. Also, less numerous at high elevations, where it is generally replaced by the North American Deermouse. Considered to be the most numerous mammal in the state, in terms of total number of individuals.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors hardwood forests of a wide variety. Most numerous in mesic to dry forests, but also occurs in bottomlands, as well as various thickets and brushy areas. It is infrequent in fields, but is can occur there, as well as in marshes. Scarce to absent in spruce-fir forests, as well as some coastal forests such as pocosins. It does occur in some buildings in wooded areas.

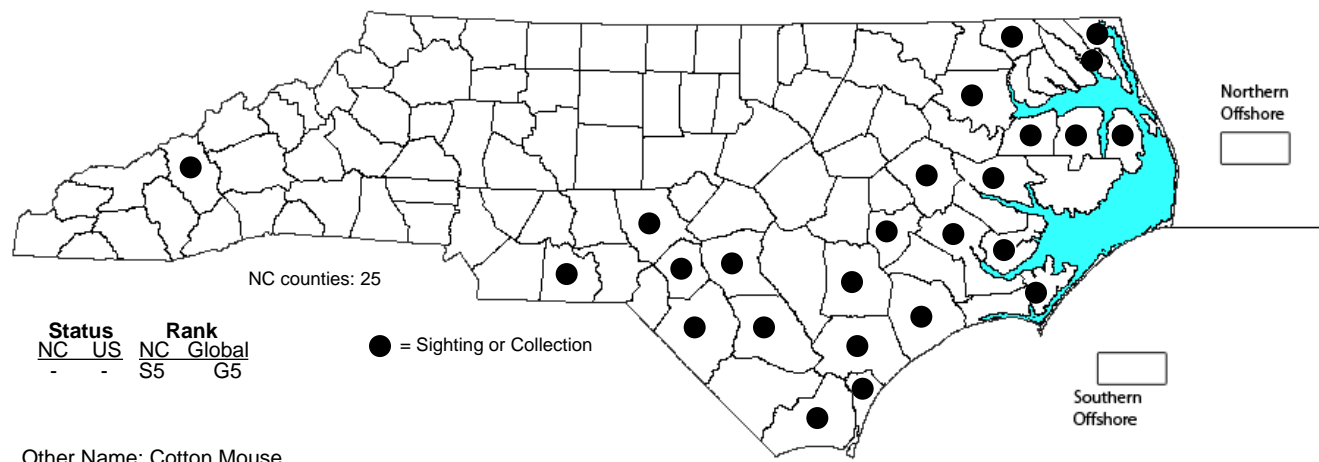
BEHAVIOR: Primarily nocturnal in activity. It swims and climbs fairly well, though it stays primarily on the ground.

COMMENTS: The species is somewhat replaced at the higher elevations by the North American Deermouse, but it does occur to the highest peaks; Linzey (1995) notes a record to 6,500 feet in the Great Smoky Mountains National Park. On the other hand, this species broadly overlaps the similar Cotton Deermouse in the Coastal Plain, and both are found in bottomlands and some other forested habitats, though the latter species favors wetter habitats than does the White-footed.

STATUS: Native

LIST TYPE: Official

Peromyscus gossypinus Cotton Deermouse



DISTRIBUTION: In NC, it is essentially limited to the Coastal Plain, plus the extreme eastern edge of the Piedmont (at least in Anson County), but it does "finger" into a few low elevation areas of the southern mountains, presumably from GA and TN drainages. It is apparently not known from nearly all of the Piedmont or nearly all of the mountains. It has been found on the Outer Banks apparently only in Buxton Woods.

Strictly the southeastern US, ranging north to southeastern VA and MO, and west to eastern TX. Most of this range lies in the Coastal Plain, but it does occur into northern GA and much of TN.

ABUNDANCE: Generally common, to locally abundant, over most of the Coastal Plain. Very rare and poorly known in the lowest elevations of the mountains in the southwestern counties, where known from a number of records from the Great Smoky Mountains National Park, all but one apparently from the TN side of the park.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors wetland forested habitats, such as bottomlands and swamps. It also occurs in wet thickets and upland forests to a lesser extent, and occasionally can be found in residential areas and in clearcuts.

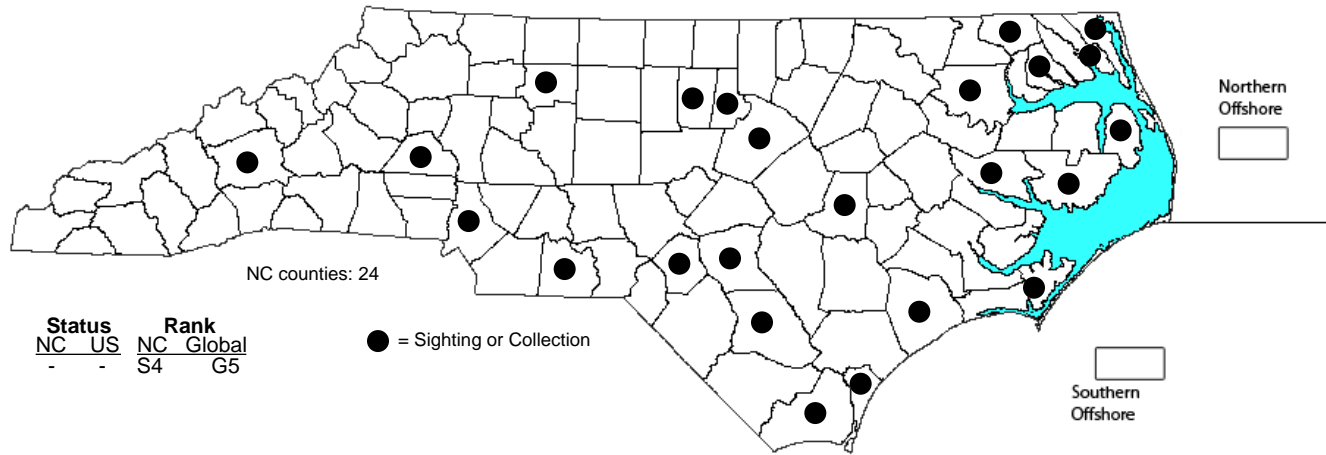
BEHAVIOR: Mainly nocturnal in activity. It swims well for a *Peromyscus* mouse, and it also climbs fairly well.

COMMENTS: Few field guides and other references show the range of this species in the southern Appalachians, though Reid (2006) in the Peterson field guide portrays a finger of the range coming up from GA into adjacent NC. Most interestingly, Linzey (1995) supplies a number of records of this species, including collections from several biologists, from elevations ranging from 1,442 to 2,800 feet in Great Smoky Mountains NP. All but one are from the TN side, but there is a record, presumably a collection, from Big Creek (1,700 feet) in Haywood County, NC. Presumably, the species "fingers" into this corner of the state along the Pigeon River, and perhaps up the Savannah River drainage into northern GA and adjacent NC. Yet, if it occurs in this part of the state, why doesn't it apparently occur over the eastern Piedmont, where elevations are barely 350-500 feet? Needless to say, more collection efforts are needed to solve this puzzling range west of the Fall Line.

STATUS: Native

LIST TYPE: Official

Reithrodontomys humulis Eastern Harvest Mouse



DISTRIBUTION: In NC, it occurs essentially statewide, though in the mountains apparently only at the lower elevations, barely found over about 2,000 feet. It is probably absent from some mountain counties that do contain low elevations (below 2,000 feet).

Occurs over the southeastern US only, north to OH and MD, and west to eastern TX.

ABUNDANCE: Generally uncommon, though widespread, except apparently rare in the mountains, and perhaps absent over about 2,500 feet. One of the less common small rodents in a given region, even in its favored habitats.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Strictly in open weedy habitats, favoring overgrown fields, especially ones with broomsedge and some bare ground areas. It can also occur in pastures and damp meadows/marshes, but it is not a true marsh species. It tends to avoid areas of trees.

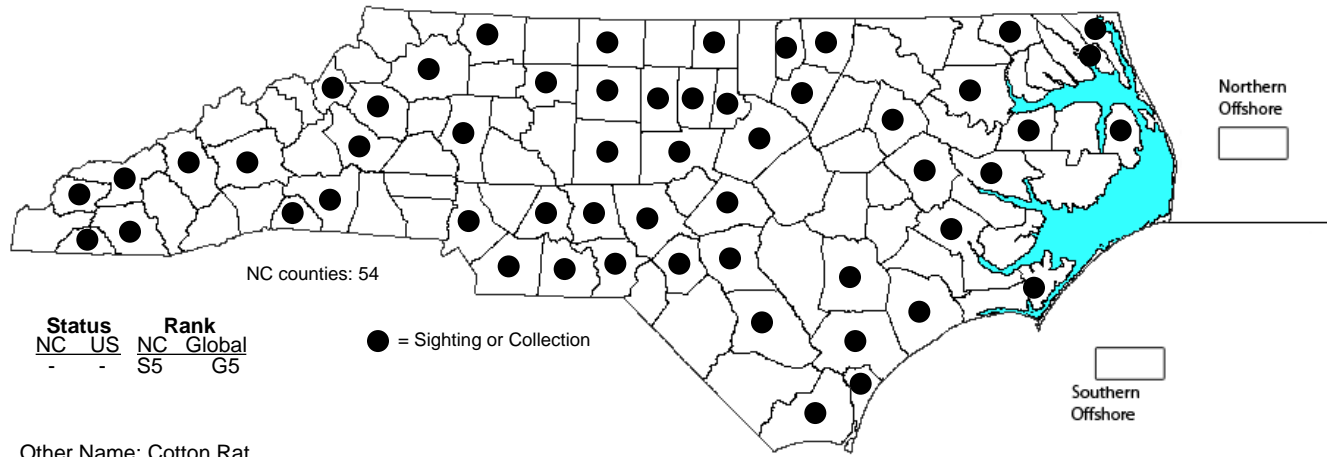
BEHAVIOR: Presumably mostly nocturnal, but seldom has been studied in detail. Presumably not local in occurrence.

COMMENTS: This species might well occur in all 100 counties, but it has been poorly studied in most parts of its range. Even so, it occurs in "common" habitats, and with more intensive pitfall trapping in overgrown fields, it likely would be shown to be not overly uncommon. Interestingly, the range maps in Reid (2006) and Kays/Wilson (2009) show the species as being absent from the western 40% of the state, which is certainly incorrect, as Lee et al. (1982) show records from scattered counties in this part of NC. Even so, it is very poorly known in most of the mountains, and range maps perhaps should exclude most of the mountain region except for Buncombe and a few other counties.

STATUS: Native

LIST TYPE: Official

Sigmodon hispidus Hispid Cotton Rat



DISTRIBUTION: In NC, it occurs statewide, at least up to the lower elevations in the mountains. Scarce above about 3,000 feet.

Found over most of the southern parts of the US, west to southeastern CA, but north only to about northern VA. This range is probably spreading northward.

ABUNDANCE: Abundant and widespread across the Coastal Plain and most of the Piedmont. Generally common in the lower mountains, and perhaps the Piedmont foothills. Scarce at middle elevations, and presumably absent from over 4,000 feet.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Dense herbaceous cover, where not overly wet. Weedy fields, pastures, brushy thickets, wooded edges, very open woods, and other places with a thick grassy cover are the typical habitats. It seldom occurs in the marshy habitats where the Marsh Rice Rat is found.

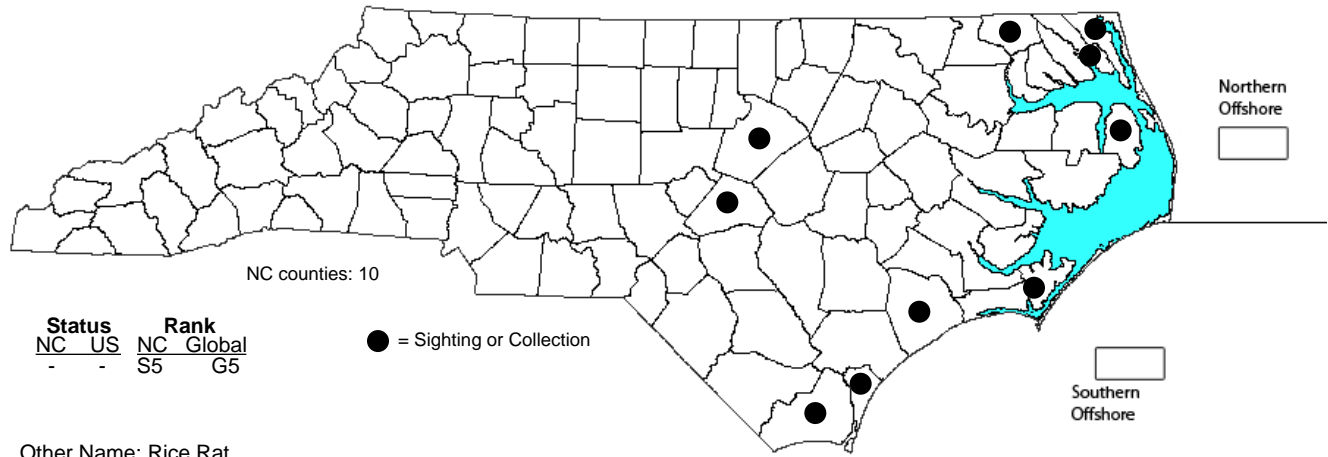
BEHAVIOR: Mainly active at night and at twilight, but unlike many small rodents, it is also fairly active by day. They can often be seen scurrying quickly across a road or wide trail in broad daylight.

COMMENTS: This species has increased considerably in range and abundance in NC in the past 50 years. It is certainly one of the most numerous mammals in the state, in all regions.

STATUS: Native

LIST TYPE: Official

Oryzomys palustris Marsh Rice Rat



DISTRIBUTION: In NC, it is scattered over the Coastal Plain, barely west into the eastern edge of the Piedmont (Wake and Harnett counties). However, it is primarily found in coastal and Tidewater counties.

The southeastern quarter of the country, north to about NJ, and west to eastern TX, primarily on the Coastal Plain, at least in the Atlantic states.

ABUNDANCE: Abundant, at least locally, in coastal marshes; seemingly quite local, and less common (mostly uncommon) farther inland to the eastern edge of the Piedmont; can be common in proper marshy habitat.

SEASONAL OCCURRENCE: Active all year.

HABITAT: Strictly in wetlands, and these are almost always in open areas; marshes are the primary habitat. Most common in brackish marshes, less so in salt marshes. Also found in very wet fields and other sunny wetlands.

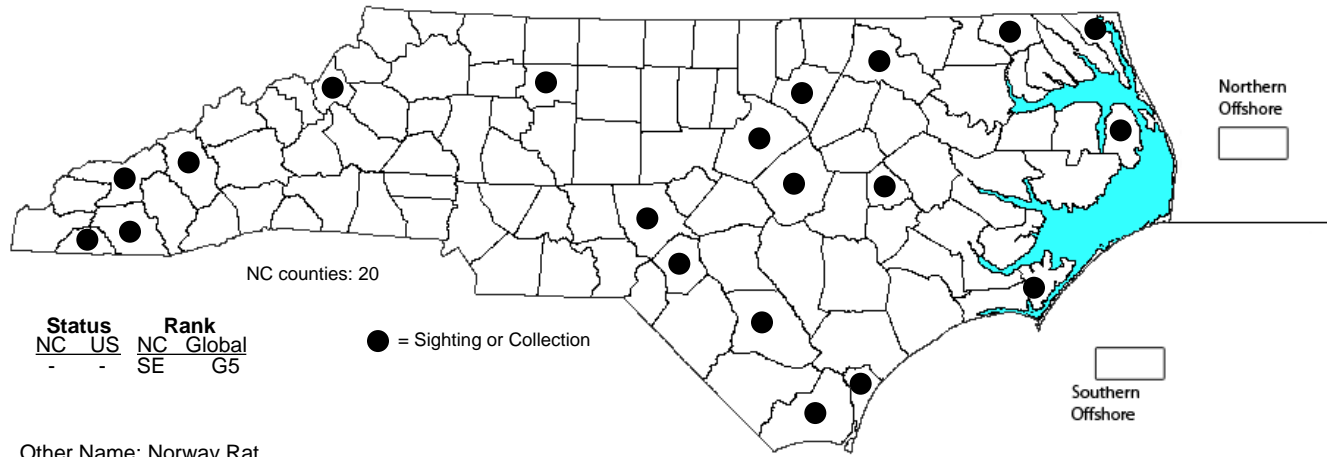
BEHAVIOR: Essentially nocturnal. Because its marshy habitat is less widespread away from coastal and tidewater areas, the species is probably quite local farther inland.

COMMENTS: This species' range inward from the tidal marshes is not well known, though it is assumed to occur essentially throughout the Coastal Plain, as there are a number of records west to Wake County (in the eastern Piedmont), where it is presumed that more biologists have been active.

STATUS: Native

LIST TYPE: Official

Rattus norvegicus Brown Rat



DISTRIBUTION: Undoubtedly found statewide in NC.

Native to eastern Siberia and China, but introduced into the New World around 1775. It now occurs over nearly all of North America except for the colder regions in the Far North.

ABUNDANCE: Abundant nearly statewide, though less common in the middle and higher elevations, though still at least common.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Almost strictly near man -- in cities, towns, and farm areas, especially so in buildings, sewers, around garbage dumps, etc. It also occurs in various fields and brushy areas, even into some marshes, including salt marshes.

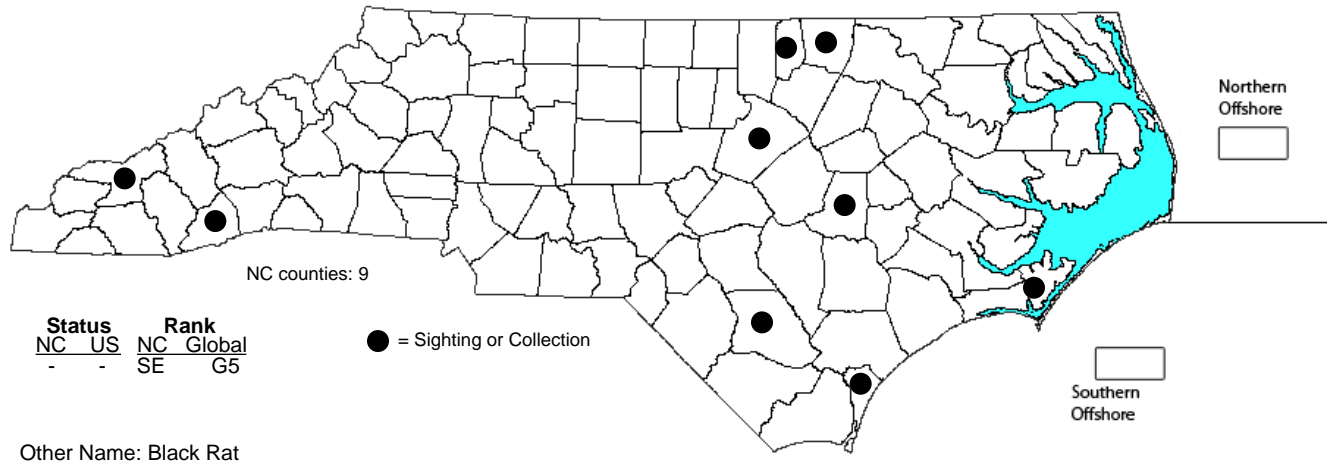
BEHAVIOR: Essentially nocturnal. Occurs in sizable groups, especially in damp places such as sewers.

COMMENTS: The species is slightly larger than the closely related Roof Rat and displaced it from most areas of the state many decades ago. The distribution map below hardly does justice to the range of the species today, as certainly it is present in all 100 counties. It is likely the most disliked species in the state, as its presence signals "filth" and potential disease. At least, the species serves man by being a lab favorite for a variety of testing of medicines.

STATUS: Introduced

LIST TYPE: Official

Rattus rattus Roof Rat



DISTRIBUTION: In NC, widely scattered across the state, and seemingly rather poorly known (at least now), as it resembles the much more common Brown [i.e., Norway] Rat.

Introduced from Europe by the early 17th Century, now found in coastal states from the West Coast to the East Coast, but mainly absent in the center of the country.

ABUNDANCE: Apparently formerly more numerous in the state, but reportedly mostly displaced by the also introduced Brown Rat. Rare and local across most parts of the state. Lee et al. (1982) stated that "the only extant populations we are aware of are in and around Wilmington".

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Occurs in both urban areas and in thickets near man. Somewhat arboreal, being found mostly off the ground, in attics, rafters, etc., in buildings, or in trees, vines, etc., away from structures.

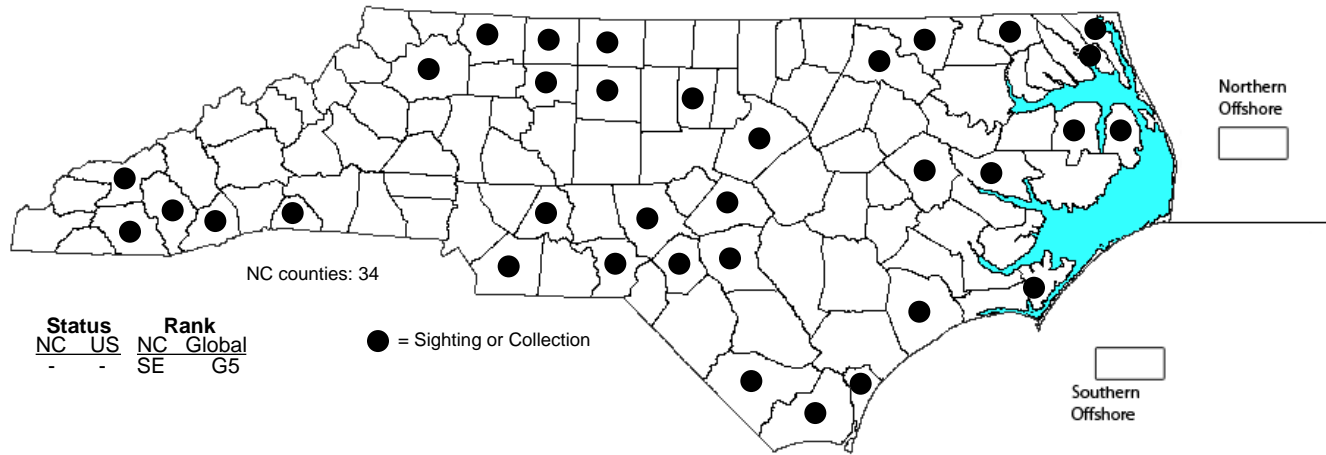
BEHAVIOR: The species is essentially nocturnal, and favors above-ground sites, leaving the ground to the allied Brown Rat, which is larger and apparently more aggressive.

COMMENTS: Webster et al. (1985) indicate that the species is now found mainly at shipping port cities, where the rats undoubtedly come to the states on ships. The Brown Rat has presumably out-competed the Roof Rat at most places where both are present.

STATUS: Introduced

LIST TYPE: Official

Mus musculus House Mouse



DISTRIBUTION: It occurs in all 100 counties in NC.

The native range is Asia, but introduced accidentally into the New world, and now present over most of North America except for northern Canada and northern Alaska.

ABUNDANCE: Essentially abundant statewide. Presumably less numerous in the middle and higher elevations in the mountains, if only because there are fewer human structures for inhabiting at those elevations.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: As is well known, occurs typically close to man, in houses, other buildings, urban places, and in farmyards. It also is widely found in fields and other brushy areas, but does not occur in forested areas.

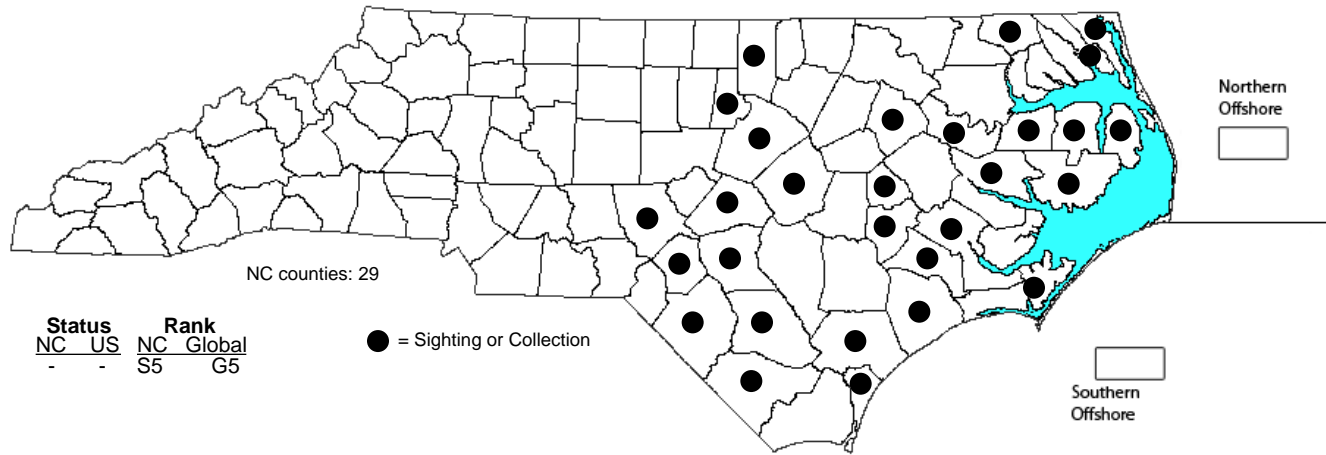
BEHAVIOR: Essentially nocturnal in activity. They are much less active in winter than at other seasons, sticking close to nests at that season.

COMMENTS: This exotic pest is overly familiar to most folks, especially those living in cities and on farms.

STATUS: Introduced

LIST TYPE: Official

Sylvilagus palustris Marsh Rabbit



DISTRIBUTION: In NC, it ranges throughout the Coastal Plain, and sparingly into the extreme eastern edge of the Piedmont (mainly in the Falls Lake and Jordan Lake areas).

A fairly small range, occurring essentially only in the Coastal Plain, from southeastern VA to the Gulf Coast only as far west as AL.

ABUNDANCE: Common essentially throughout the Coastal Plain (but greatly outnumbered by the Eastern Cottontail); rare at the eastern edge of the Piedmont. Likely not common in the Sandhills portion of the Coastal Plain.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Restricted to wetlands, both forested and non-forested -- marshes and swamps are preferred, but may occur in bottomlands. It occurs on barrier islands, where it is very numerous in brackish marshes (as opposed to salt marshes).

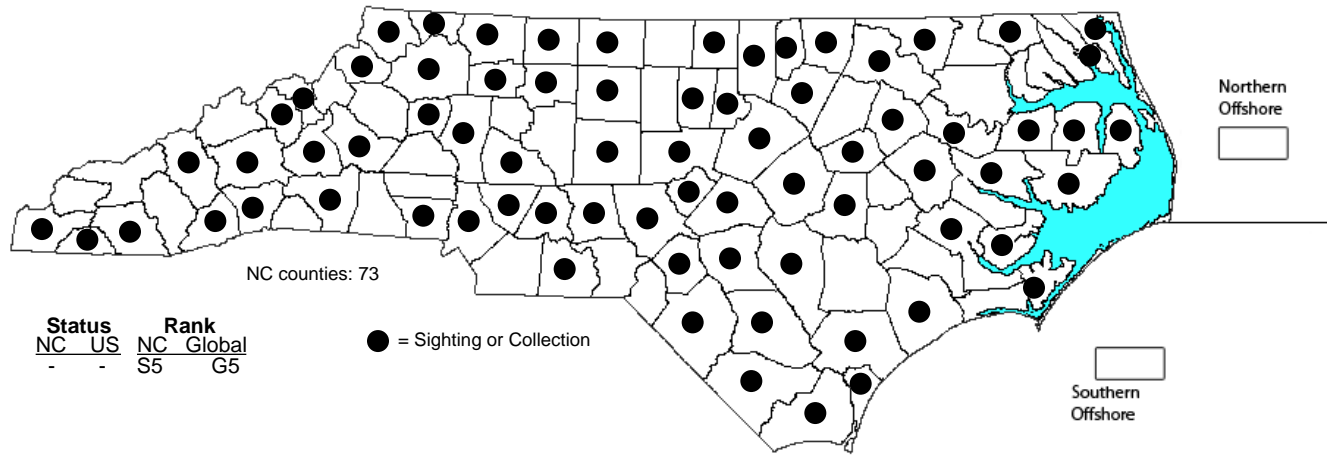
BEHAVIOR: Active mainly at night, but can be seen during the day, as well. Not surprisingly, it is a good swimmer, often escaping by water instead of over land.

COMMENTS: In the extreme eastern Piedmont, it occurs almost solely along several major river floodplains -- the Neuse and the Cape Fear, where it has been seen in the wetland forests above both Jordan Lake and Falls Lake. Both this species and the Eastern Cottontail can be seen "together" alongside NC 12 on the Outer Banks, at the edges of marshes.

STATUS: Native

LIST TYPE: Official

Sylvilagus floridanus Eastern Cottontail



DISTRIBUTION: In NC, it occurs statewide, certainly present in all counties, from the coast to the middle elevations, at least up to 4,200 feet elevation.

Ranges throughout the eastern US and extreme southern Canada, west through the Great Plains and south to the Gulf Coast and into Mexico.

ABUNDANCE: Abundant across the state, though numbers decrease in the middle and higher elevations, where the very similar Appalachian Cottontail is present.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Very widespread, but usually near dense herbaceous cover. Favors brushy fields, thickets, clearcuts, and wooded borders, but does occur in forest interiors, as well as in wide open weedy fields, dunes, maritime thickets, and many other places. It favors dry to mesic habitats, as opposed to wet places. It is often seen by the layman in yards, close to cover, usually at twilight.

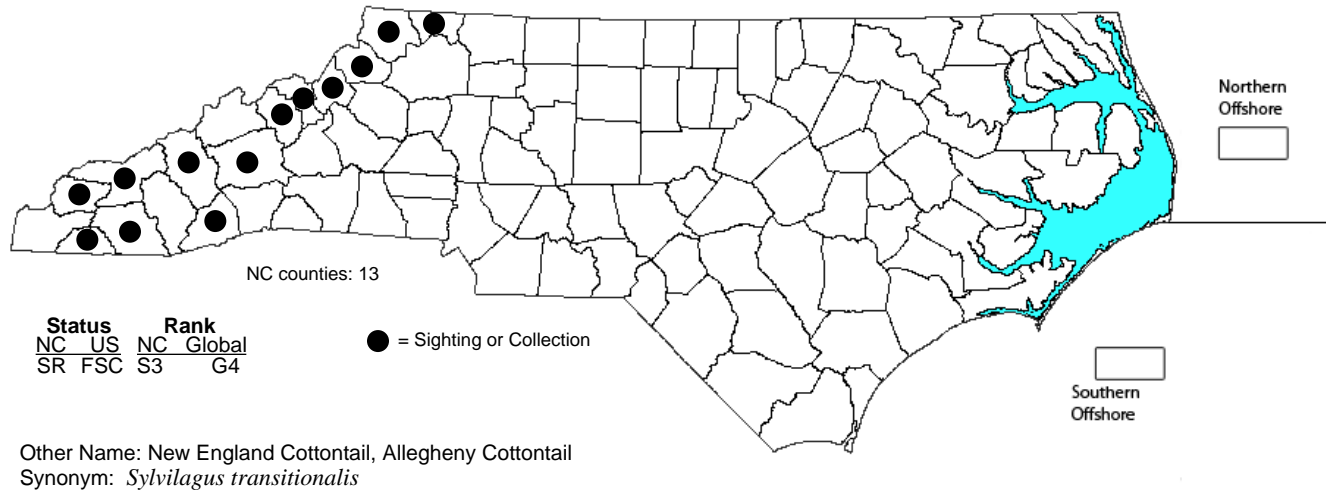
BEHAVIOR: Primarily nocturnal, but occasionally active by day, mainly at dawn and dusk. As is well known, it is very prolific as a breeder.

COMMENTS: This well-known species is one of the most frequently seen mammals in the state, after only the Eastern Gray Squirrel and perhaps the White-tailed Deer. In wetter habitats, the Marsh Rabbit "replaces" the Eastern Cottontail, as does the Appalachian Cottontail at the higher elevations.

STATUS: Native

LIST TYPE: Official

Sylvilagus obscurus Appalachian Cottontail



DISTRIBUTION: The NC range is solely in the mountains, mainly at middle and high elevations. It might occur in all mountain counties, but no records yet for a few of them.

A very small range, solely in the Appalachians, from PA south to AL.

ABUNDANCE: Easily overlooked because of the great similarity to the Eastern Cottontail, but generally rare to more likely uncommon. However, it has somewhat limited habitats, compared with the Eastern. More numerous over 4,000 feet, and probably occurs down to at least 2,500 feet.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Middle and high elevation forests, almost always with a thick cover of rhododendron and/or mountain laurel. This can also include cut-over thickets regenerating back with these evergreen shrubs, but seldom far from dense evergreen cover. Also occurs around small openings, grass balds, and heath balds, especially their edges, but not normally in open fields and near man.

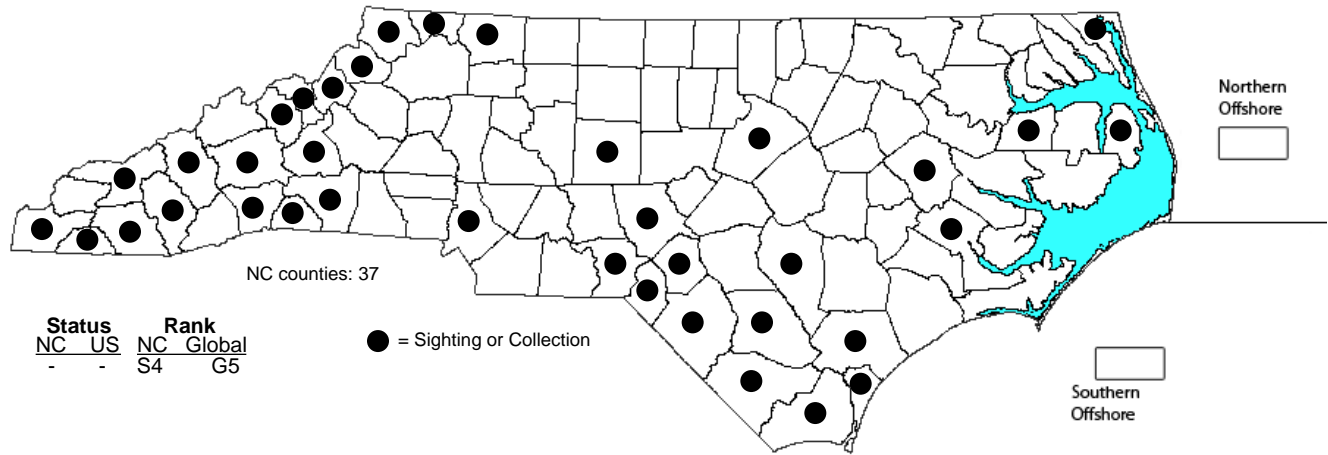
BEHAVIOR: More active at night than day, but can be seen during the daytime. Seldom ventures as far from dense cover as does the Eastern Cottontail.

COMMENTS: This species was split off from the former New England Cottontail (*S. transitionalis*), which ranges from ME to AL; this split took place in 1992. The remainder of this population in the north retains the common and scientific names. Both of these species are rather rare and of conservation concern, especially the New England Cottontail. Though Appalachian Cottontails are game animals, it is unlikely that hunters make a distinction between it and the Eastern Cottontail, and the N.C. Wildlife Resources Commission does not have a separate bag limit for it; thus, it is difficult to obtain information about the number of them that are harvested by hunters.

STATUS: Native

LIST TYPE: Official

Condylura cristata Star-nosed Mole



DISTRIBUTION: In NC, it has a bimodal range, being found essentially only in the mountains and the Coastal Plain, though it does range south to the Piedmont of VA. There are a few sight reports from the Piedmont of NC, plus a specimen from the foothills (Surry County) not far from the mountains.

Found from eastern Canada south in the eastern US only to the Great Lakes states and the Atlantic coast states, south to GA.

ABUNDANCE: Uncommon to locally common in the mountains; rare to uncommon, and perhaps local, in the Coastal Plain, except quite rare in the northwestern portion of that province. Casual in the Piedmont, with one confirmed record from the foothills, and a few sightings.

SEASONAL OCCURRENCE: Active year-round, though seldom seen, as it spends nearly all of its time underground.

HABITAT: Almost strictly in wetland habitats; swamps, bottomlands, bogs, marshes, wet thickets, moist meadows, etc., are favored habitats. They can also be found along streams and springs in hilly topography, especially in the mountains.

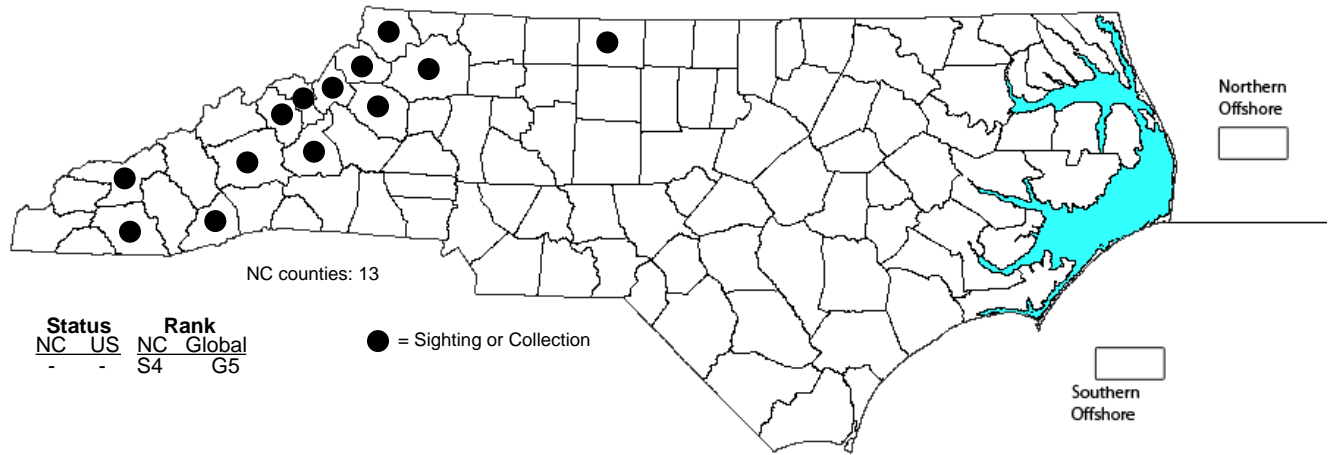
BEHAVIOR: They spend very little time on the surface, as with the other two mole species in the state. Its tunnels alternate between underground burrows and on-the-ground runways, unlike other moles. These tunnels are thus more undulating, and as it is a good swimmer, a mole tunnel leading to water is strongly suggestive of a Star-nosed Mole.

COMMENTS: This is one of the more bizarre-looking mammals in the state, with its fleshy 22-"fingert" snout. The N.C. Wildlife Resources Commission lists the Coastal Plain population as State Special Concern, because it is rather scarce; the mountain population has no special status. Both populations belong to the same subspecies (*Condylura cristata parva*) and thus there is apparently no phenotypic difference among the populations in the state.

STATUS: Native

LIST TYPE: Official

Parascalops breweri Hairy-tailed Mole



DISTRIBUTION: In NC, essentially restricted to the mountain province, generally above 2,000 feet in elevation. It may well occur in all mountain counties, but it might possibly be absent in a few in the southwestern corner of the state. In 2013, one was seen and photographed well into the Piedmont, in Rockingham County; however, it likely extends into the Piedmont only in the extreme northern and northwestern portions.

A fairly small range in the northeastern states and adjacent southeastern Canada, extending southward only through the Appalachians.

ABUNDANCE: Generally common to perhaps locally abundant within its range in the state, especially above about 2,500 feet.

SEASONAL OCCURRENCE: Active year-round, but seldom seen at any times, as it tends to remain underground.

HABITAT: A wide variety of forested and brushy habitats, including wooded residential areas and other sites similar to that of the Eastern Mole in its range (at lower elevations). Moist soil sites, such as rich wooded slopes, are favored.

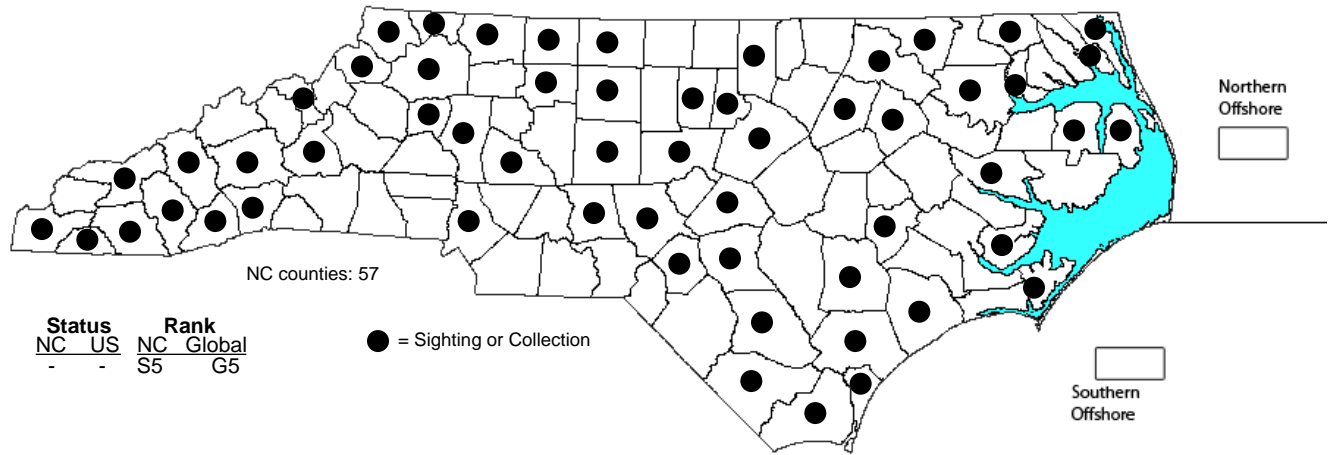
BEHAVIOR: Very similar to that of the more familiar Eastern Mole. It digs tunnels just below the surface, but they are not as obvious as those of the Eastern Mole, as more are located in wooded areas and less so in lawns. Deeper tunnels are used mainly in winter, and for nesting and for shelter.

COMMENTS: This species is the highland counterpart of the Eastern Mole, though the former species has a hairy tail as opposed to a naked tail in Eastern Mole. It is less easily detected by the public, as it is more typical of montane forests and is less at home in lawns and other areas near man.

STATUS: Native

LIST TYPE: Official

Scalopus aquaticus Eastern Mole



DISTRIBUTION: In NC, it occurs statewide, certainly present in all 100 counties.

Occurs over nearly all of the Eastern US, except for areas close to Canada.

ABUNDANCE: Common to very common and widespread across the Coastal Plain and Piedmont, including on the Outer Banks. Less common -- mainly uncommon -- over the mountains as a whole, but can be numerous in low elevations such as in river valleys. Scarce at higher elevations, and likely absent over 4,500 feet.

SEASONAL OCCURRENCE: Active year-round, but seldom comes to the surface.

HABITAT: Favors a wide variety of somewhat moist, but not wet, soil. Open woods, wooded residential areas, brushy areas, fields, pastures, and even dunes are used. It tends to avoid very wet soils, as well as high elevation sites, which are favored by the Star-nosed Mole and the Hairy-tailed Mole, respectively.

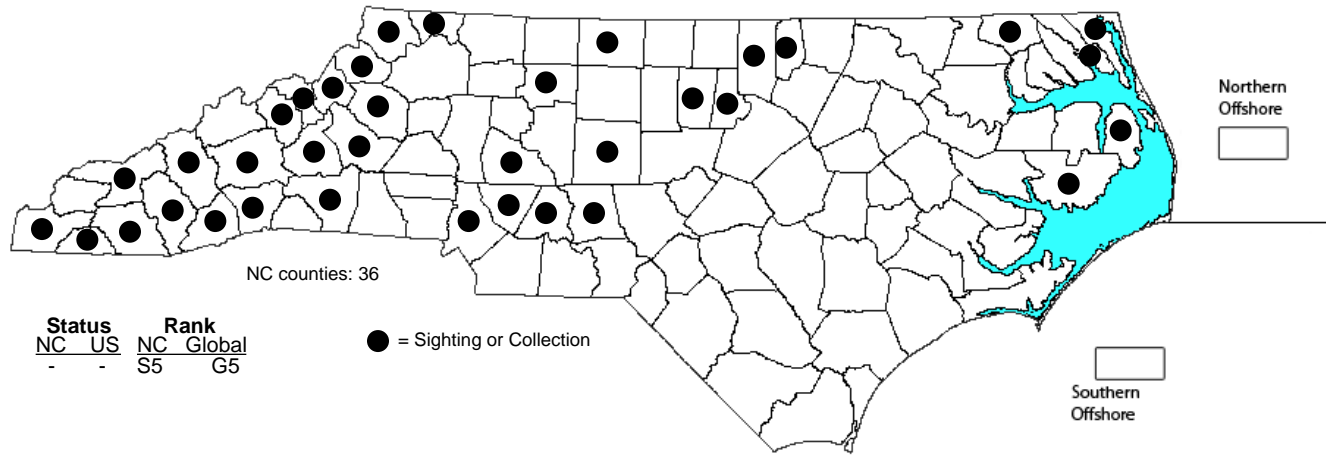
BEHAVIOR: It digs tunnels of several types. The ones just below the surface, well-known to the layman, are used mainly for foraging; deeper tunnels are used for shelter, nesting, and passage to foraging tunnels.

COMMENTS: Eastern Moles often are considered as pests for their soil disturbance to golf courses and some lawns. They are seldom seen above ground, except when found dead.

STATUS: Native

LIST TYPE: Official

Blarina brevicauda Northern Short-tailed Shrew



DISTRIBUTION: In NC, it ranges over the mountains and western Piedmont, and possibly over most of the Piedmont; another subspecies is disjunct to southeastern VA and parts of the northeastern Coastal Plain of NC.

Occurs over southeastern Canada and the northeastern US, south to OK and GA.

ABUNDANCE: Abundant in the mountains, but much less numerous in the western Piedmont, where most *Blarina* shrews are likely to be Southern. Apparently uncommon in the narrow range of the Coastal Plain subspecies (*B. brevicauda telmalestes*).

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Favors forests and woodlands, of various types, but also found in various brushy areas, fields, and even in salt marshes. Leaf litter is preferred in the habitat, and thus most often found in deciduous or mixed forests. The coastal race is found in a variety of wetland habitats, especially swampy places with much leaf litter.

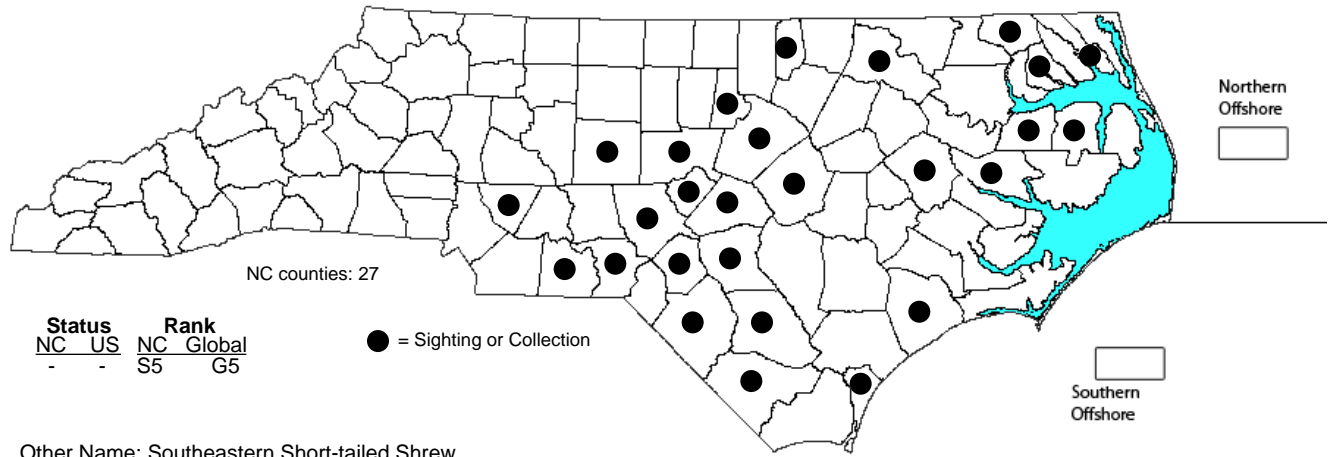
BEHAVIOR: Active by day and night, though more often at night. Spends most of its time burrowing under leaf litter.

COMMENTS: This is one of the most abundant mammals in the state, at least within the mountains. The coastal subspecies (*telmalestes*) was formerly considered as a separate species, but it seems odd that it is assigned to the Northern Short-tailed Shrew instead of the Southern. Apparently this race is not found at the same place as is the Southern, even though the ranges may overlap. And, the Piedmont separation of the two species also might not overlap; i.e., these two species seem to be completely allopatric, suggesting that they are subspecies of each other, as good species should overlap in range at some places and have divergent habitats, or at least have evolved to co-exist with different behavioral traits. Thomas French, in a paper published in *Brimleyana*, found specimens of Northern Short-tailed Shrew eastward in the Piedmont only to Rockingham and Forsyth counties; on the other hand, he noted that specimens of shrews west to Randolph and Cabarrus were Southern. Thus, the many counties in the eastern half of the Piedmont reported in Lee et al. (1982), as shown in blue on the map below, might in actuality be Southern Short-tailed Shrews, and not Northern.

STATUS: Native

LIST TYPE: Official

Blarina carolinensis Southern Short-tailed Shrew



DISTRIBUTION: In NC, the range is somewhat poorly delineated from the extremely similar Northern Short-tailed Shrew, but apparently found throughout the Coastal Plain and the eastern and central portions of the Piedmont. It is absent from the mountain region, and probably also the foothills of the Piedmont.

Occurs from southeastern VA south to the Gulf Coast, and west to TX.

ABUNDANCE: Common to abundant over most or all of the Coastal Plain, and common over its range in the Piedmont.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: A variety of forests and thickets, probably more numerous in wetlands than in uplands. It also occurs in fields and other open brushy areas, but wooded areas are favored.

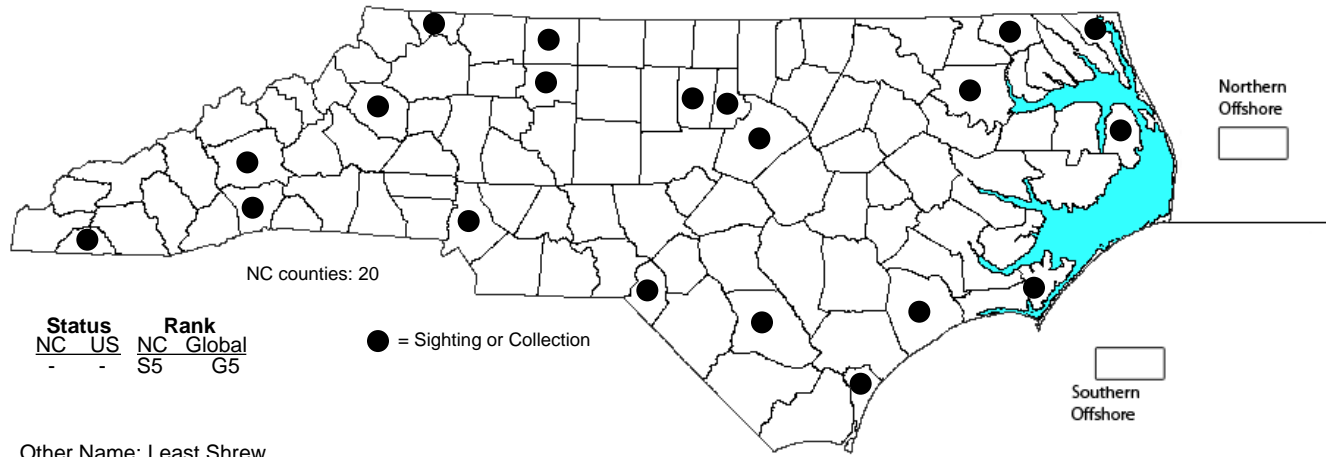
BEHAVIOR: Active day and night, though presumably more active at night. They spend much time in leaf litter and are hard to detect.

COMMENTS: This species and the Northern Short-tailed Shrew had often been considered as a single species -- the Short-tailed Shrew -- for much of the 20th Century, but by the latter decades there was general agreement among taxonomists that the two entities are distinct species. Lee et al. (1982) indicated that the Southern Short-tailed Shrew occurred west only to the extreme eastern Piedmont, but recent examination of the chromosomes of *Blarina* shrews has indicated that the Southern occurs over the eastern and central portions of the Piedmont, west at least to Randolph and Cabarrus counties. However, there are some details of the range that are still not yet finalized, especially as one subspecies of the Northern has populations in part of the Coastal Plain, disjunct from another subspecies in the western Piedmont; is the Southern present with the Northern at the same sites in the Coastal Plain?

STATUS: Native

LIST TYPE: Official

Cryptotis parva North American Least Shrew



DISTRIBUTION: In NC, it is statewide in occurrence, one of just two shrew species in the state that occurs in all three provinces. In the mountains, however, it is found mainly at lower elevations (below 3,000 feet) and thus might be absent in a few high-elevation counties.

Occurs over most of the Eastern US, barely reaching Canada, and ranging west to NB and TX and south to the Gulf Coast.

ABUNDANCE: Generally common in the Coastal Plain and Piedmont, but less numerous (uncommon to perhaps locally common) in the mountains. However, it is seldom seen unless specifically searched for with trapping efforts.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Occurs mainly in open habitats, especially brushy fields and clearcuts; however, marshes are also used, as are damp meadows. Seldom found in forested areas.

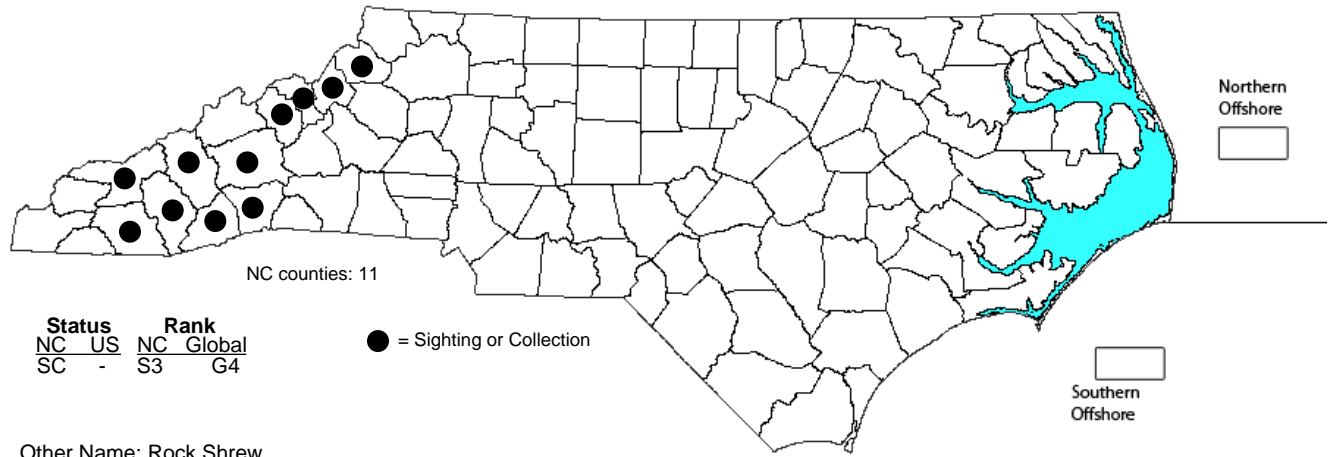
BEHAVIOR: Probably active both day and night, but it is very secretive because of its small size and dense herbaceous cover in which it inhabits.

COMMENTS: Webster et al. (1985) indicate that the species undergoes strong population fluctuations at a given site from season to season and year to year; this reference also indicates that Least Shrews can be quite gregarious, rather unusual for shrews.

STATUS: Native

LIST TYPE: Official

Sorex dispar Long-tailed Shrew



DISTRIBUTION: In NC, it is limited to the mountains, with most records from the southern half of the province, though likely occurs over most of the province. Most records are from over 4,000 feet in elevation.

A very restricted range for a shrew, being limited strictly to the Appalachians, from the Canadian Maritimes and ME south into NC.

ABUNDANCE: Rare in the southern and central mountains, and very rare to locally rare in the northern mountains, where very poorly known.

SEASONAL OCCURRENCE: Occurs year-round, presumably, but likely there has been little collecting effort in its restricted habitat during the winter season to determine its activity level at that season.

HABITAT: Quite restricted -- limited to forested areas with rocks, such as talus slopes, rocky areas on steep slopes, cliffs and caves with crevices/cavities, and occasionally along streams with rocky margins. These habitats are mostly in the higher elevations, rarely down to about 4,000 feet.

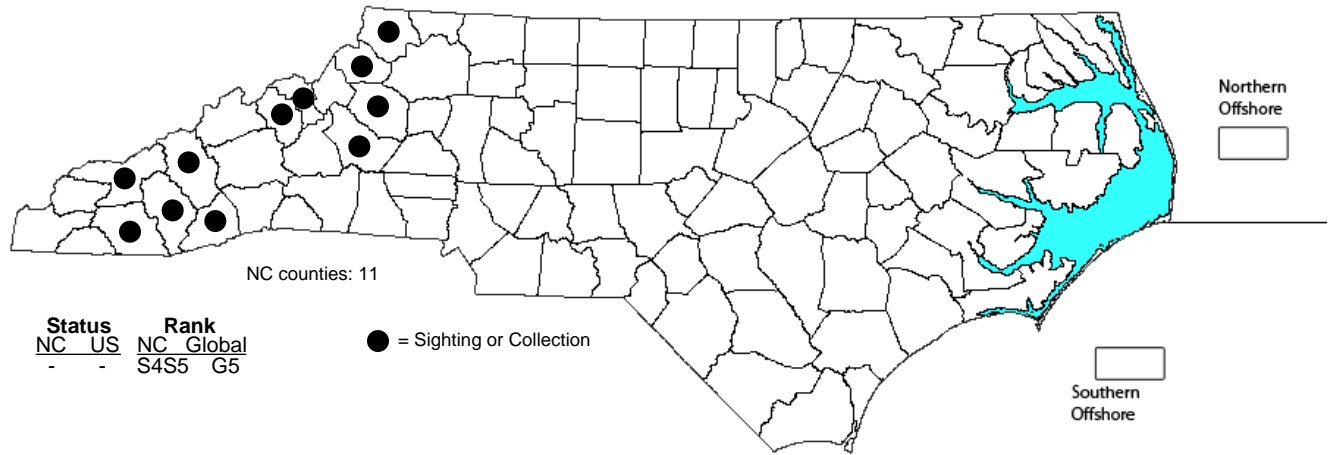
BEHAVIOR: Individuals are active day and night, foraging mainly within rock crevices.

COMMENTS: This species is often known as the Rock Shrew in many references, which is a much better name than Long-tailed Shrew. It has been difficult to collect with pitfall traps, as it spends much time deep in crevices where such cans are hard to place. Not surprisingly, accumulation of records has been slow, though the species is clearly quite limited in habitat, compared with other montane shrews.

STATUS: Native

LIST TYPE: Official

Sorex fumeus Smoky Shrew



DISTRIBUTION: In NC, it ranges throughout the mountains, but is absent farther to the east.

Unlike most northern shrews, it occurs only in the Northeastern states and adjacent Canada, south in the Appalachians to northern GA.

ABUNDANCE: Common to very common within its range in the state, and not seemingly local.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Favors cool coniferous or mixed forests, at mid- to high elevations, such as spruce-fir, spruce-hardwoods, and hemlock-hardwoods. Areas with moss, logs, and rocks are favored within the habitat.

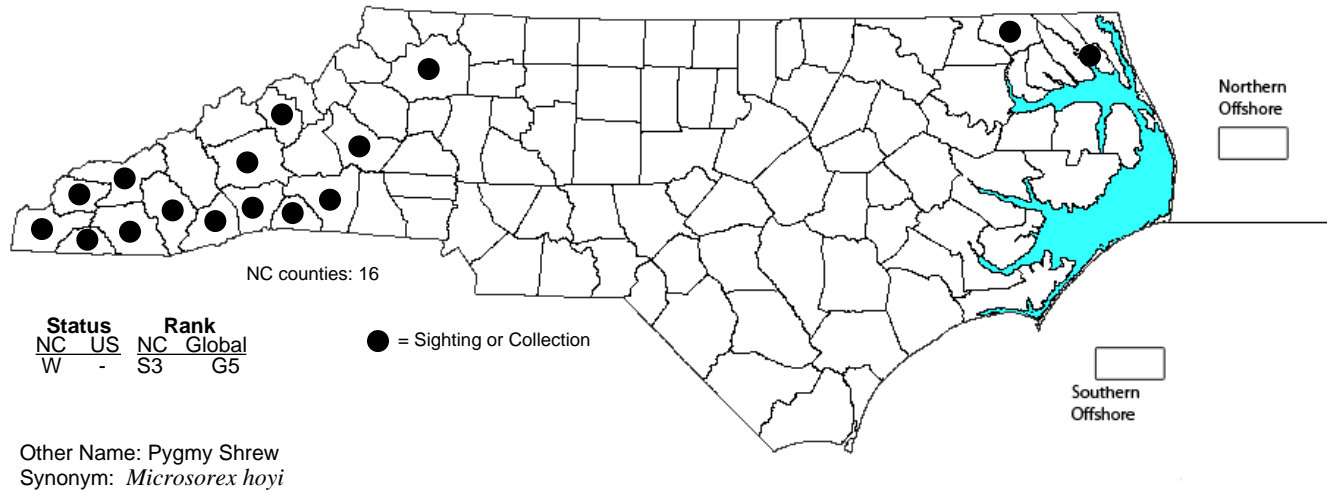
BEHAVIOR: Active mainly at night, but also active by day.

COMMENTS: Compared with the Cinereus Shrew, the Smoky Shrew is more selective in habitat, favoring cool and moist sites, and is less often found in drier forested stands.

STATUS: Native

LIST TYPE: Official

Sorex hoyi American Pygmy Shrew



DISTRIBUTION: In NC, it is found mainly in the mountains, but sparingly in the extreme northern Coastal Plain, in the Great Dismal Swamp area. There are as yet no Piedmont records, and found thus far only in a few counties in the northern mountains. As it is a "northern" species, it is assumed to occur in all of the northern mountain counties. Its absence in the Piedmont might be real.

Occurs from coast to coast, from AK to Labrador, and south to the northern states. In the East, it ranges southward into the southern Appalachians, and on the Coastal Plain into northern NC.

ABUNDANCE: Rare to uncommon, but probably widespread, over at least the southern half of the mountains. Can be locally numerous -- at least in parts of Macon and Jackson counties. Apparently very rare in the northern mountains. Rare in the Great Dismal Swamp area of the northern Coastal Plain, but not known from any counties farther southward.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Primarily in hardwood forests, less so in mixed forests; seldom found in the mountains away from such wooded habitats. However, in the Coastal Plain it has been found in a variety of habitats, from brushy fields, to cut-over lands, to pine plantations, to upland hardwoods.

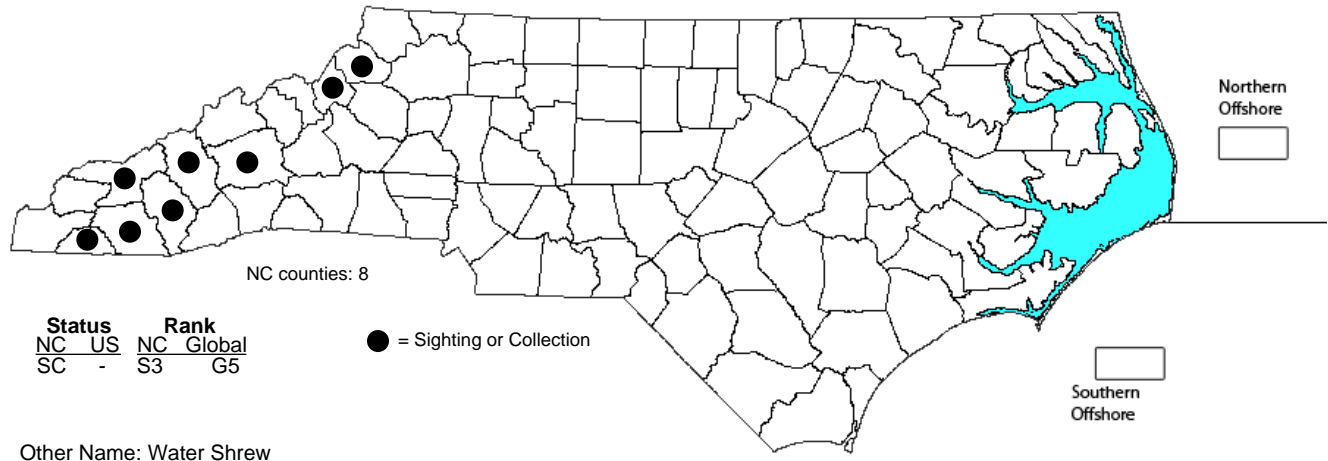
BEHAVIOR: As it is such a tiny species, it easily moves beneath leaf litter. It is active both day and night.

COMMENTS: This is the smallest mammal in the country, and because of that it had been hard to trap until pitfall cans and drift fencing were used to capture small mammals. Though much has been learned of its range and habits since the 1980's, when there were just a few state records, its abundance is poorly known, and it still has never been recorded from the northern mountains and the Piedmont. However, most small mammals can be quite numerous, and in reality this probably isn't a rare species in the mountains. In fact, several years ago the N.C. Natural Heritage Program moved the species from its Rare List to its Watch List.

STATUS: Native

LIST TYPE: Official

Sorex palustris American Water Shrew



DISTRIBUTION: In NC, spottily occurring in the mountains, south to Clay County. Relatively few records for most counties where recorded, and perhaps absent in a few mountain counties.

Coast to coast, from AK to Labrador, and south to the mountainous areas are the lower 48 states. In the East, it occurs mainly in the mountains, south in the Appalachians.

ABUNDANCE: Rare, at least in the southern counties, and perhaps very rare in the northern mountains.

SEASONAL OCCURRENCE: Active year-round, but probably few trapping efforts have been made in winter to determine how active it is at that season.

HABITAT: As the name implies, it occurs very close to water, in this case running water of small streams and creeks, in cool forests. Areas with rhododendron and/or mountain laurel, in cove forests, are preferred.

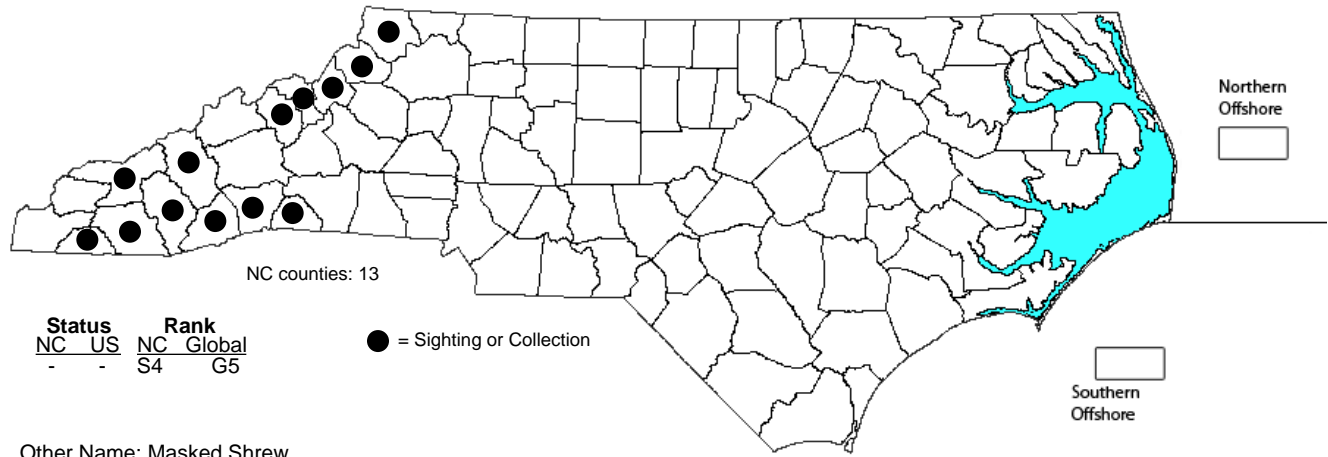
BEHAVIOR: This species feeds in the streams as well as along the edges, but it does enter the water, most unusual for a small mammal.

COMMENTS: This is a difficult mammal to trap, such as in pitfall traps, as its habitat does not lend well to that type of collecting. Therefore, details of its range and abundance are slow in coming.

STATUS: Native

LIST TYPE: Official

Sorex cinereus Cinereus Shrew



DISTRIBUTION: In NC, it is restricted to the mountains, though it has a wide elevational range there, down at least to about 2,000 feet.

A very wide range from coast to coast, from AK east to Labrador, south to the middle of the lower 48 states, but south in the East only through the Appalachians.

ABUNDANCE: Common to abundant in the state, though perhaps few records for the northern counties (but still expected to be very numerous there).

SEASONAL OCCURRENCE: Active year-round.

HABITAT: A very wide range of forested habitats, from coniferous forests to hardwood forests, preferably with a good ground cover. It is most numerous in moist forests, especially with much moss, rocks, decaying logs, and leaf litter. It also occurs in certain open habitats such as weedy fields, bogs, and meadows, though it has a preference for shaded habitats.

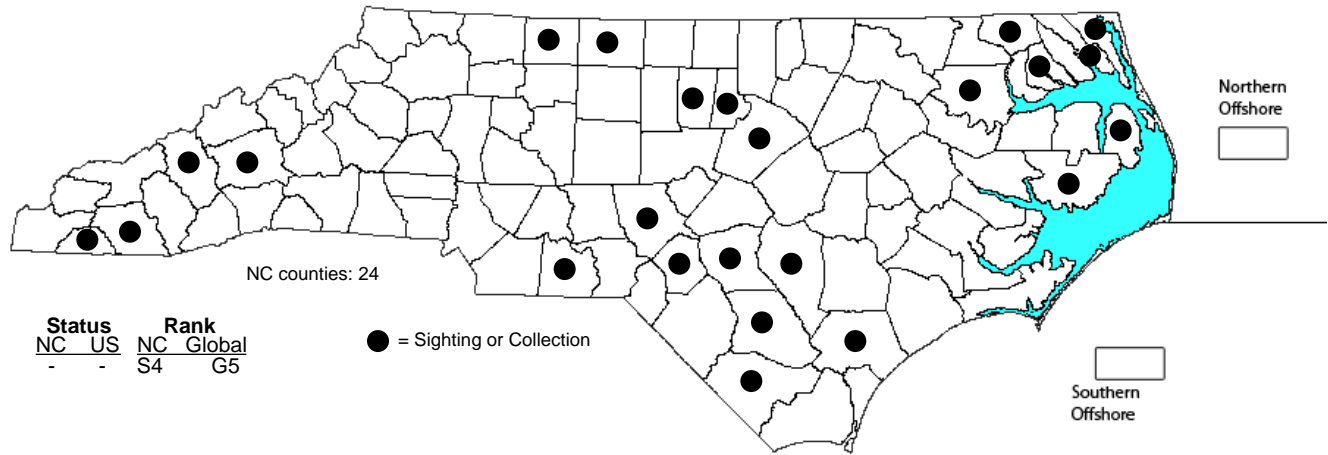
BEHAVIOR: Active day and night, though likely more so at night.

COMMENTS: This species is more often called the Masked Shrew by field guides and other references, but the latest checklists use Cinereus Shrew as the common name. It is smaller in size than the essentially equally numerous Smoky Shrew, which is also restricted in NC to the mountain region.

STATUS: Native

LIST TYPE: Official

Sorex longirostris Southeastern Shrew



DISTRIBUTION: In NC, occurs over nearly all of the state, but likely absent from the northern mountains, and distribution in much of the central and western Piedmont is very spotty. Thus, somewhat poorly known range in the western half of the state, but certainly throughout the Coastal Plain and eastern Piedmont.

Ranges only over the southeastern third of the country, north to MD and MO, and south to the Gulf Coast and central FL.

ABUNDANCE: Locally common, if not locally abundant, in some areas of the eastern Coastal Plain. Apparently uncommon to locally common in the western Coastal Plain and eastern Piedmont. Scarce (generally uncommon) in the remainder of the Piedmont, and likely rare in the central and southern mountains, where it occurs only at lower elevations.

SEASONAL OCCURRENCE: Occurs and is active year-round.

HABITAT: Generally in moist places, such as bottomlands and pocosins, wet fields, recent clearcuts, pine plantations, and other such damp thickets. It also occurs in some upland habitats, but wetlands are preferred. Areas with tangles of vines are also favored.

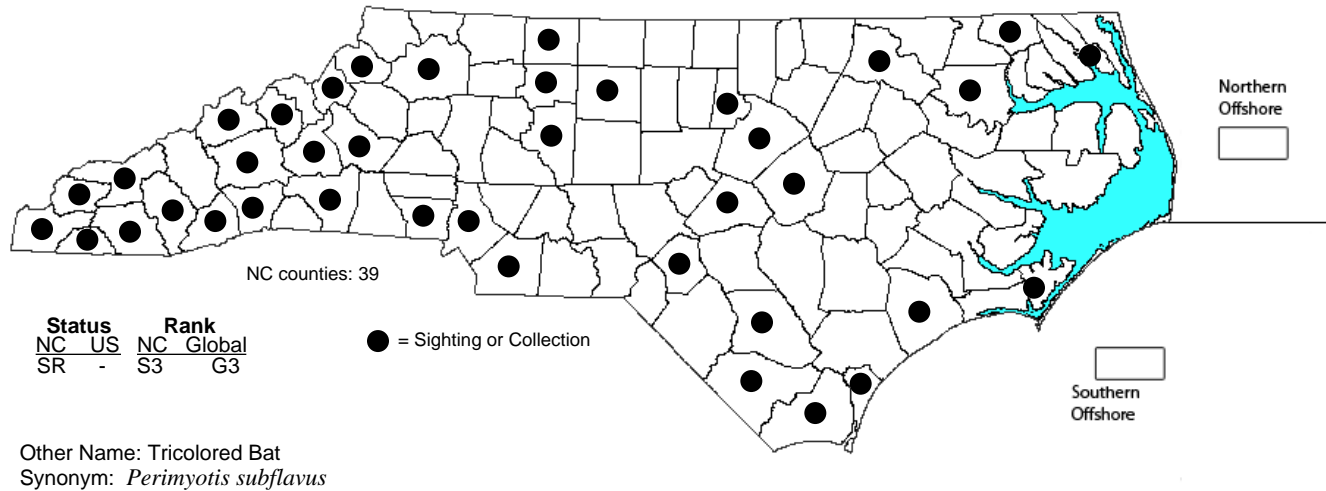
BEHAVIOR: Active both day and night.

COMMENTS: This was a relatively poorly-known species as late as the 1980's, but with the advent of pitfall trapping for small mammals, it became clear that this species is quite common locally in much of the Coastal Plain, even in disturbed habitats such as pine plantations and recent clearcuts in damp areas. The Dismal Swamp Southeastern Shrew (*S. longirostris fisheri*) was Federally listed as Threatened in 1986. However, Dave Webster found that it was not limited to just the Great Dismal Swamp area, but occurred in some numbers southward toward Wilmington in the lower Coastal Plain. After these discoveries, the U.S. Fish and Wildlife Service delisted this subspecies in 2000, as it was determined to be much more widespread and common than previously thought. In fact, there is some question if this is a valid subspecies.

STATUS: Native

LIST TYPE: Official

Pipistrellus subflavus Eastern Pipistrelle



DISTRIBUTION: In NC, it occurs essentially throughout the state, though possibly absent locally in some far eastern counties.

Occurs throughout the eastern half of the United States and southeastern Canada, to the Gulf Coast.

ABUNDANCE: Declining, especially in the mountains, due to White Nose Syndrome. Formerly common to locally very common in the mountains, but now apparently uncommon; in the Piedmont, still common to fairly common, but probably uncommon in the foothills. Least numerous in the Coastal Plain -- generally uncommon -- but can be locally very common there. Perhaps absent to rare near the immediate coast and the Outer Banks.

SEASONAL OCCURRENCE: Not truly migratory, but moves to caves and mines during the late fall and winter, at least in the mountains and foothills. Hibernates in winter.

HABITAT: A wide array of habitats, from upland to lowland forests/woods, to groves, to farmyards, to towns, though rarely in heavily populated areas. Roosts in the mountains and foothills in caves and mines during the colder months, but in most areas, they roost in vegetation in trees, or at times in old buildings.

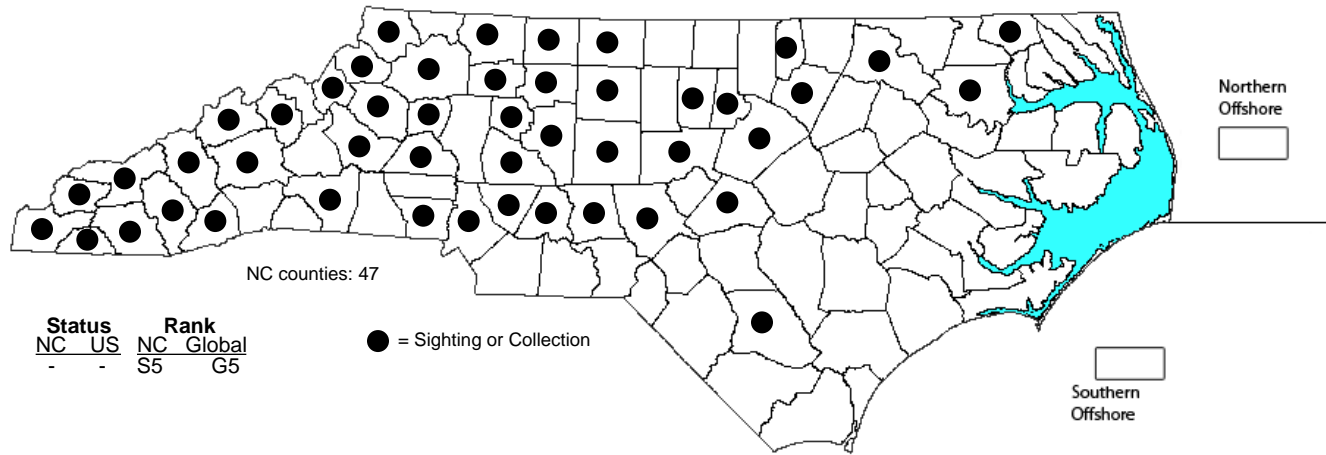
BEHAVIOR: Emerges in the evening to forage over open water, fields, or wooded areas, generally in slow flight; as this is our smallest bat, its flight is as slow as any others. Though it often roosts singly, it can occur in sizable colonies, at least in winter roosts in caves.

COMMENTS: The species has declined precipitously in the mountains in the last several years, as it is susceptible to White Nose Syndrome. Thankfully, the species is widespread in the state, and as it is not generally local in occurrence, it is not in imminent danger of extirpation over most of the state. Some mammalogists have given it the common and scientific names of Tricolored Bat (*Perimyotis subflavus*) in the past few years, though some references and checklists do not recognize that revision.

STATUS: Native

LIST TYPE: Official

Eptesicus fuscus Big Brown Bat



DISTRIBUTION: In NC, ranges throughout the mountains and Piedmont, and at least into the upper (western) half of the Coastal Plain. Seemingly absent within about 50 miles from the coast (i.e., in all coastal counties and most other eastern counties).

Throughout the lower 48 states and southern Canada, and into Mexico.

ABUNDANCE: Common and widespread over the mountains and Piedmont, and into the northern Coastal Plain. Much less numerous in the central Coastal Plain (uncommon); though it ought to occur in the eastern half of the Coastal Plain, the abundance there is unknown, and it is likely absent over most of this area.

SEASONAL OCCURRENCE: Non-migratory, but generally hibernates in winter, though can awake and fly briefly during warm winter spells.

HABITAT: Occurs in a wide array of habitats, from wooded areas to farms to cities and towns; the most "urban" of the bats occurring in NC, as roosts are normally inside buildings, especially attics. They also roost inside hollow trees or beneath bark, and occasionally around the entrance of caves and mines. It does not roost in vegetation.

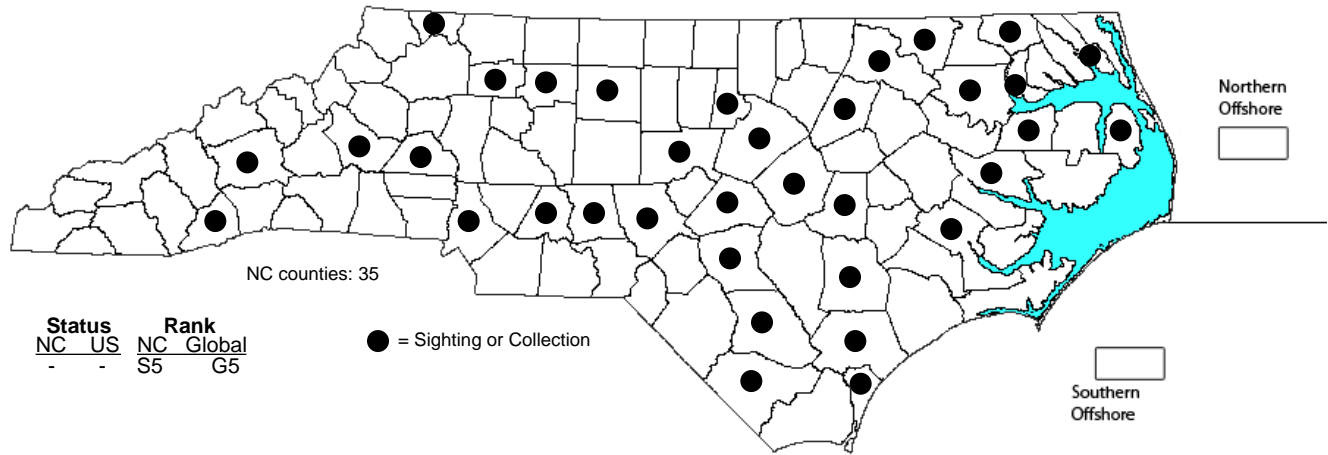
BEHAVIOR: This species roosts in fairly large groups, especially in buildings, of 20 to several hundred; most young are born inside attics. Flies after dark, often around city street lights.

COMMENTS: This is the most familiar bat to city residents, and is the one most often encountered in homes. Its range and abundance in the southeastern counties is not well known; in fact, Lee et al. (1982) had no records at all from the Coastal Plain south of Bertie County, but the species certainly must occur over most of the province. All field guides and reference books "broad-brush" the species' range to cover the entire eastern half of the country.

STATUS: Native

LIST TYPE: Official

Nycticeius humeralis Evening Bat



Synonym: *Nycticeius humeralis*

DISTRIBUTION: In NC, it occurs throughout the Coastal Plain and Piedmont, and in the lower portions of the mountains; it appears to be absent from the middle and higher elevations of the mountains.

Occurs mainly in the southeastern portion of the United States, north to NJ and IA, and south to the Gulf Coast and Mexico.

ABUNDANCE: One of the most numerous bats in the state, generally common to abundant in the Coastal Plain and Piedmont, but uncommon in the mountains. This status is for the summer only, as it migrates out of the state (apparently) and has not been found in winter.

SEASONAL OCCURRENCE: Highly migratory, considered to leave NC in fall and return in the spring. Lee et al. (1982) state "Earliest spring record 22 March; latest fall record 15 September".

HABITAT: Generally found in a variety of forests/woodlands, but forages over open areas as well as over forests. It roosts both inside buildings and in hollow trees and beneath bark, but it does not roost in caves or mines. Apparently it does not roost inside vegetation (clumps of leaves, etc.).

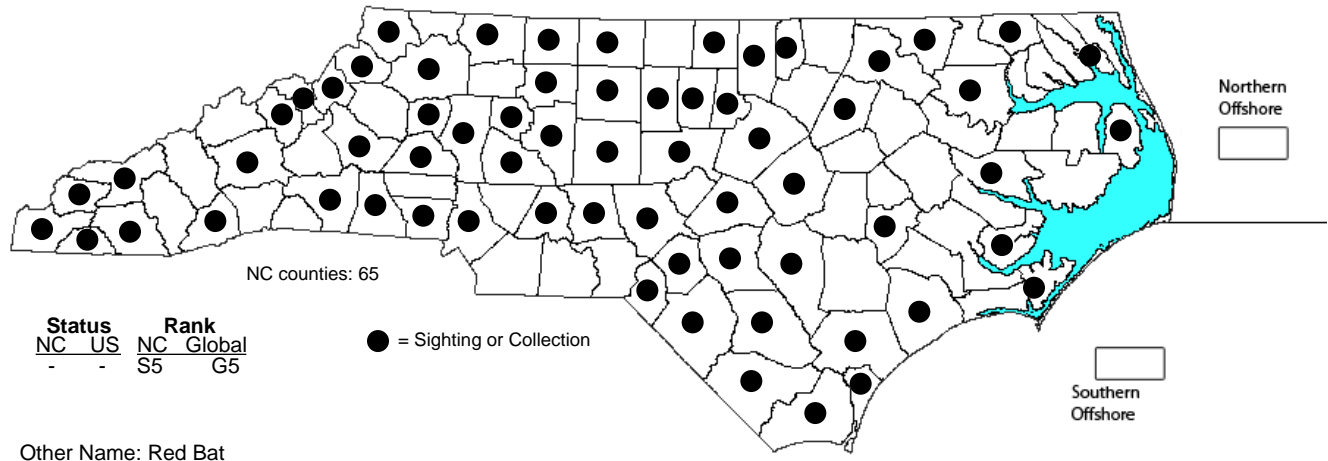
BEHAVIOR: It is somewhat colonial in roosting, such as inside buildings. It feeds at night in a rather slow flight.

COMMENTS: This species is not as well known as the Red Bat, despite its abundance, in part because if seen in flight just before dark it might be difficult to separate from other species. It is one of the few NC bats that appear to completely leave the state in winter, though it would be little surprise if a few remain in the state at that season.

STATUS: Native

LIST TYPE: Official

Lasiurus borealis Eastern Red Bat



DISTRIBUTION: It occurs statewide in NC, undoubtedly present in all 100 counties.

Occurs throughout the eastern half of the United States and southern Canada, south into Mexico.

ABUNDANCE: Abundant (at least for a bat species) across the entire state, and has been found from the higher mountains to the Outer Banks. It is the most numerous bat species in the state.

SEASONAL OCCURRENCE: Year-round, with some migration likely involved. It generally goes into torpor in winter, but is active on some warmer nights in winter.

HABITAT: A variety of forested areas, from conifer to hardwood; usually roost in trees or shrubs fairly close to open water or a field/cleared area. They can often occur in semi-wooded residential areas, as well. They roost singly in vegetation of trees and shrubs, and are not found inside buildings or caves/mines. It shows no inclination toward coloniality.

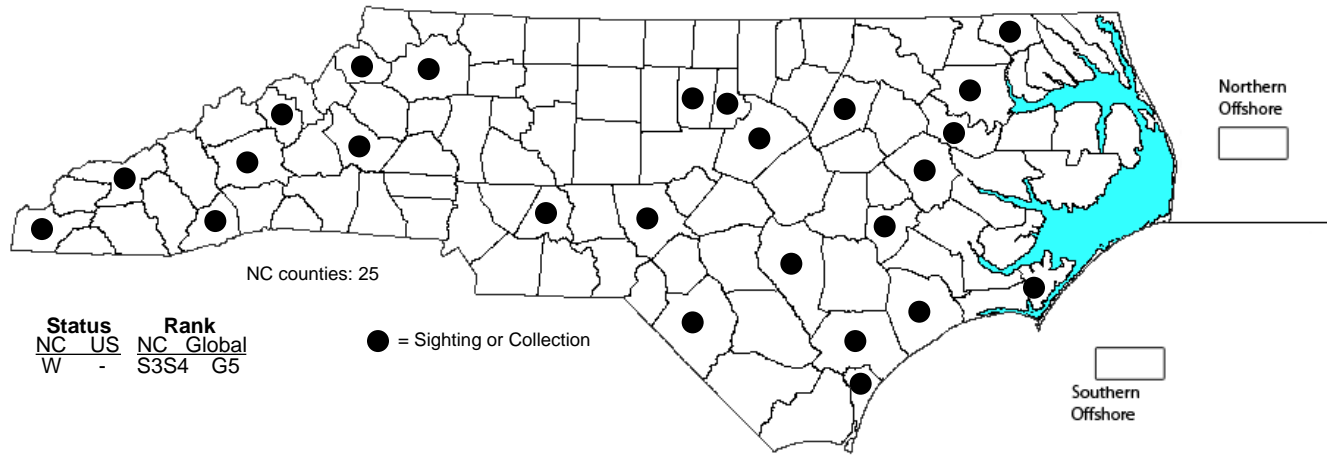
BEHAVIOR: This is one of the earliest bats on the wing in the evening, at times seen before sunset, such that an observer can see the rufous/rusty color of its fur. They often feed around street lights, unlike most bat species.

COMMENTS: A few details of its seasonality and winter behavior are not well understood, but this species is by far the most frequently captured in many, if not most, mist-netting operations.

STATUS: Native

LIST TYPE: Official

Lasiurus cinereus Hoary Bat



DISTRIBUTION: In NC, it occurs across the entire state, but it is highly migratory, and its summer range is generally north of NC, but sparingly into the higher mountains. In migration and winter, it ranges across the state.

A wide range from the Pacific to the Atlantic, and all over the lower 48 states and southern Canada, into Mexico.

ABUNDANCE: Generally uncommon across the state in the cooler months. Poorly known in summer, but Lee et al. (1982) indicate sight records at Mount Mitchell at that season; thus, rare and poorly known in the higher mountains in summer. There are no, or very few, records for most of the Piedmont; however, this is likely an artifact of field work, and there seems no logical reason why it would be rarer there than in the mountains and the Coastal Plain, assuming that records from these two regions are during migration and/or winter.

SEASONAL OCCURRENCE: Highly migratory. Occurs in NC almost strictly in migration and in winter. Winter behavior is not well known in NC, but likely it is active on mild nights.

HABITAT: Generally roosts in wooded areas very close to openings and water; apparently not a bat of deep forests. Forests can be coniferous, as well as deciduous. Bats roost in trees, such as in clumps of dense vegetation. It is seldom or never seen roosting in buildings or caves/mines.

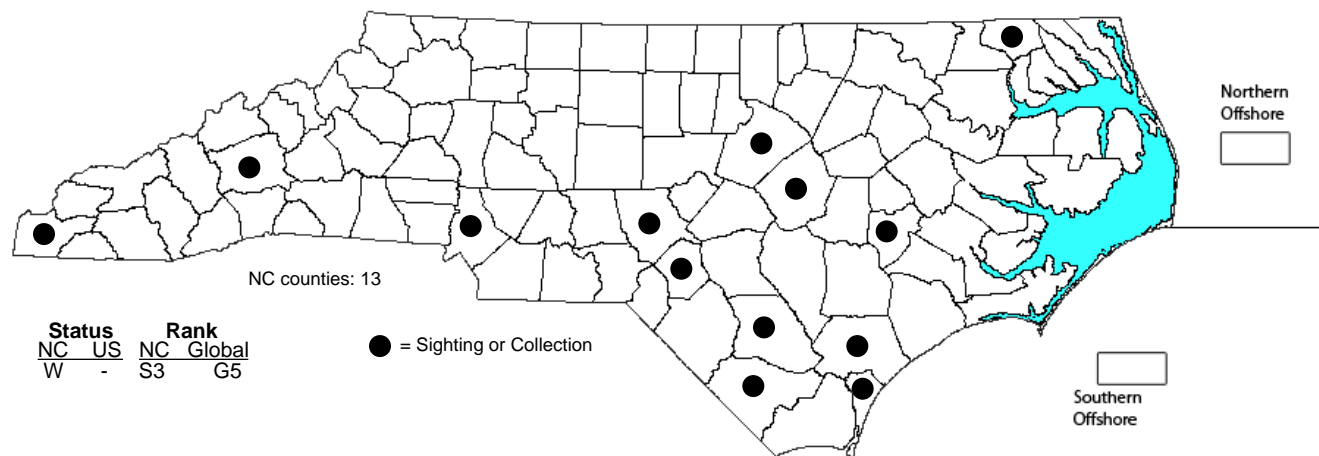
BEHAVIOR: This species can at times be seen during the daylight hours in migration, most unusual for a bat species. Foraging bouts are at night, like with all bat species, and they forage mostly over open areas, including water.

COMMENTS: This bat has a number of features that differ from others, even within its genus. Males and females often occur in nearly completely different regions, at least in summer. It also undergoes long-distance migration, rare for a *Lasiurus* species; sometimes they can be seen during the daytime in migration. It is also much larger than other members of the genus. Despite being well-known over its large range, it is generally uncommon in the East, and much remains to be learned about its natural history -- especially in the Piedmont province.

STATUS: Native

LIST TYPE: Official

Lasiurus seminolus Seminole Bat



DISTRIBUTION: In NC, it occurs over most of the Coastal Plain, and the southeastern half to two-thirds of the Piedmont, and once in the mountains. Likely absent over most of the mountains and in the northwestern Piedmont.

Essentially restricted to the southeastern quadrant of the United States, from southeastern VA to eastern TX, with strays farther northward.

ABUNDANCE: Though poorly known as late as 1985, records have greatly increased in recent years, as more mist-netting has clarified its status. Considered to be uncommon to locally common in the southern Coastal Plain, probably rare to uncommon in the northern portions of that province, and uncommon in the Piedmont portion of the range. Still poorly known over much of the state.

SEASONAL OCCURRENCE: Possibly migratory to an extent, as it is known in the summer only over much of the state, but it has been found in the cooler months in the southeastern part of the state. It is mostly in torpor in winter, but it may fly briefly during mild weather in winter.

HABITAT: Wooded areas close to forest edges, as opposed to deep forests. Areas with Spanish moss are favored, but the literature does not indicate a preference for swamps or bottomlands versus drier pineland habitats. Areas with water are not essential in the habitat.

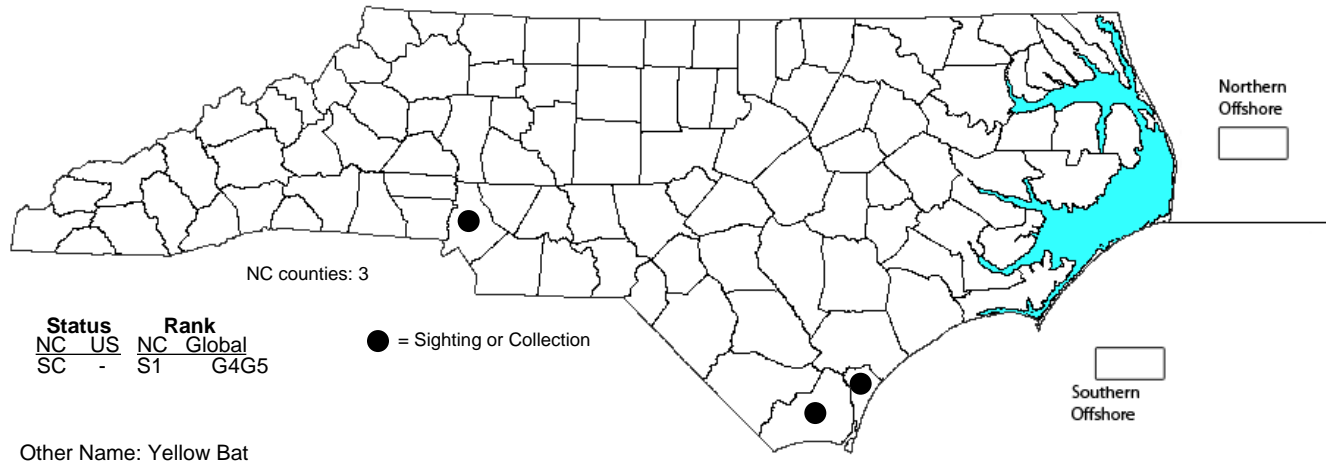
BEHAVIOR: They forage at night mostly over open areas, which can be fields as well as water. Some foraging is presumed to occur over forests.

COMMENTS: Though the species is not rare in the state, much is still to be learned about its range, abundance, and habitats, especially in the Piedmont and the northern Coastal Plain. Mist-netting efforts are greatly needed to help fill in these data gaps.

STATUS: Native

LIST TYPE: Official

Lasiurus intermedius Northern Yellow Bat



DISTRIBUTION: In NC, it is known only from the extreme southeastern corner of the state (Brunswick and New Hanover counties) and as a probable stray to Mecklenburg County, as this appears to be a Coastal Plain species.

Restricted in the United States to the far Southeast, ranging casually to southeastern VA (resident?) and eastern TX, but extending well into Central America.

ABUNDANCE: Apparently very rare or rare in the Wilmington/Brunswick County area, if not farther west in Brunswick County. Expected to eventually be found farther northward in the NC Coastal Plain. Likely an accidental/stray in Mecklenburg County.

SEASONAL OCCURRENCE: Apparently hibernates in winter, though not fully understood in the Carolinas, as it is quite scarce in these states.

HABITAT: Areas with Spanish moss are favored for daytime roosts, if not at night. It apparently does not roost in buildings or other man-made structures, at least not known to do so in the Carolinas. Areas with longleaf pine and turkey oak are favored, according to Webster et al. (1985). However, there appears to be a clear association of the bat with Spanish moss.

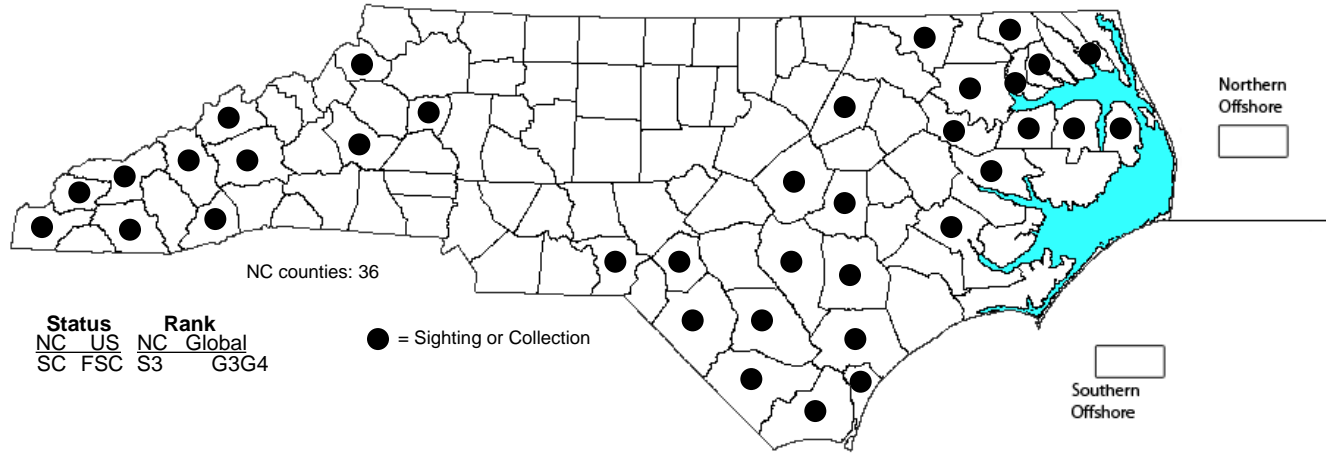
BEHAVIOR: They forage at night over wooded areas and likely over water. However, this species is apparently not as tied to swamps and bottomlands as are several other species (e.g., Rafinesque's Big-eared Bat and Southeastern Myotis).

COMMENTS: The first two state records were of individuals found dead by non-biologists, and thus without any habitat association data. However, in 2008, mist-nets were set up in a wooded residential area in Brunswick County, and a Northern Yellow Bat was captured, providing some indication of the habitat, such that it associates there with broken forested areas, likely where there is Spanish moss. As there are a few records from the extreme southeastern corner of VA, it is possibly a resident in NC farther northward of New Hanover County. Much obviously still is to be learned about its range in NC, and further mist-netting efforts in the southern Coastal Plain are needed.

STATUS: Native

LIST TYPE: Official

Corynorhinus rafinesquii Rafinesque's Big-eared Bat



DISTRIBUTION: In NC, has a bimodal range -- mountains/foothills and Coastal Plain, but absent in nearly all of the Piedmont. The Coastal Plain population is the subspecies *C. rafinesquii macrotis*, whereas the mountain population belongs to the nominate *C. r. rafinesquii* subspecies.

Found only in the Southeast, ranging north to IN and VA, and south to the Gulf Coast and eastern TX.

ABUNDANCE: Rare to uncommon in the Coastal Plain, but generally rare in the mountains, where it is found mainly in the southern half of the province. Very rare east to the western Piedmont (Alexander County).

SEASONAL OCCURRENCE: Hibernates in winter. Non-migratory.

HABITAT: The Coastal Plain population occurs mainly in swamps and bottomland forests, where they roost in hollow trees, under loose bark, old buildings, and beneath bridges, at least in the warmer months. The mountain subspecies roosts mainly in mines, but less so in abandoned buildings and rarely in trees and caves. However, it is not typically considered a cave-dweller, unlike the Virginia Big-eared Bat. Permanent water is usually present in the habitat, over which they typically forage.

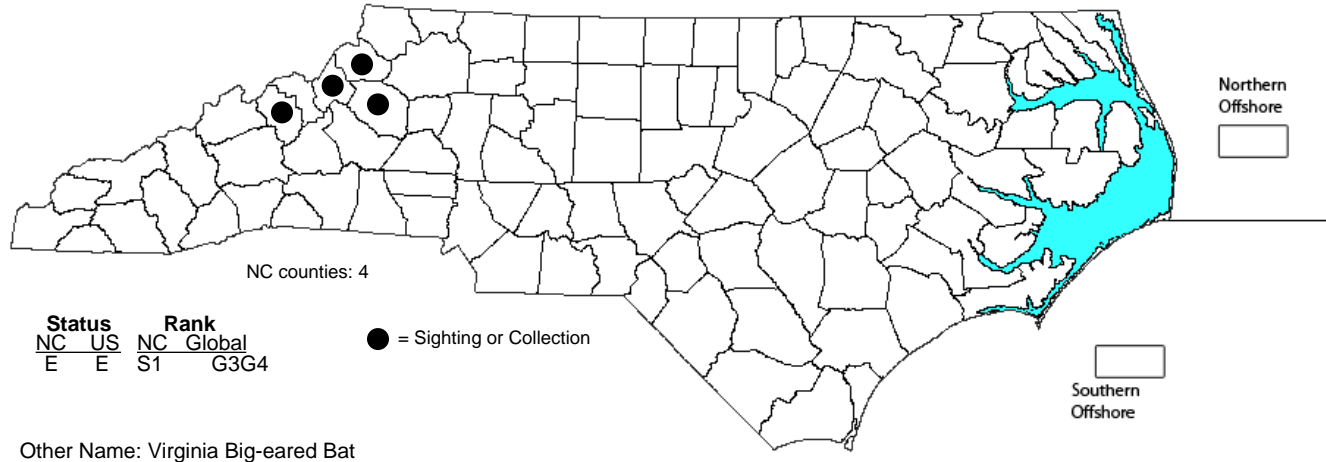
BEHAVIOR: Feeds at night over water and over forests, emerging later than most bats. Roosts in moderate groups.

COMMENTS: As with many bat species not already Federally listed, this species has been proposed for listing, but such listing is not likely, as it is not overly rare within its range. Mist-netting has helped to better understand its range and numbers in the Coastal Plain. Numbers up to several hundred individuals have been found in a few abandoned mines in the southern mountains.

STATUS: Native

LIST TYPE: Official

Corynorhinus townsendii Townsend's Big-eared Bat



DISTRIBUTION: In NC, the species occurs only in a few caves/mines in the northern mountains, mainly on Grandfather Mountain.

The full species occurs primarily in the western half of the US and Mexico, with scattered and isolated populations from WV and KY to northwestern NC; these eastern populations are separate subspecies from the nominate one in the West. The subspecies in VA and NC is the "Virginia Big-eared Bat" (*Corynorhinus townsendii virginianus*).

ABUNDANCE: Rare in NC, and highly restricted to just a few known sites in a small geographic area. It is uncertain if White Nose Syndrome has hit these populations in the state yet, but the NC population is highly threatened with extirpation if the fungus is found in these caves.

SEASONAL OCCURRENCE: Hibernates in winter. Apparently not migratory, at least in NC.

HABITAT: This is a strict cave-dweller, not utilizing old buildings or trees for roosting. It occurs in caves/mines in the higher elevations (over 3,500 feet, and mostly over 4,500 feet), amid such high elevation forests. Probably feeds over creeks/ivers as well as forests.

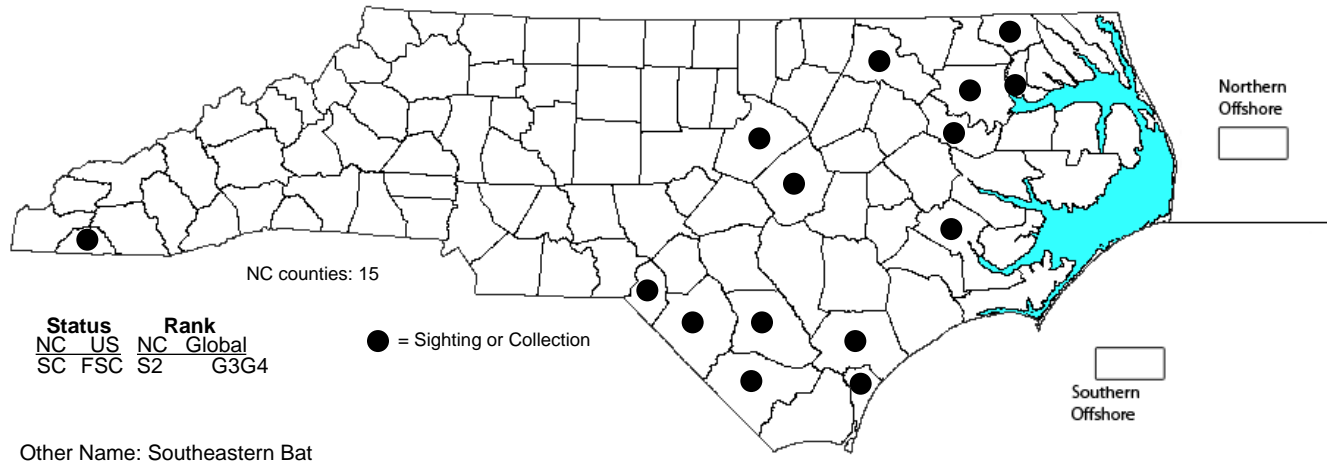
BEHAVIOR: It roosts in moderate-sized colonies, often 100 or more individuals. It is, or course, nocturnal in foraging.

COMMENTS: The two eastern subspecies are each Federally listed as Endangered by the U.S. Fish and Wildlife Service. Two caves on Grandfather Mountain are gated, to keep people from entering them and disturbing the bats.

STATUS: Native

LIST TYPE: Official

Myotis austroriparius Southeastern Myotis



DISTRIBUTION: In NC, ranges over nearly all of the Coastal Plain, and barely to the eastern edge of the Piedmont. There is also a record for the extreme southwestern mountains (Clay County).

Only in the southeastern quadrant of the country, north to VA and IL, and south to the Gulf Coast.

ABUNDANCE: Rare to uncommon, but widespread, in the Coastal Plain, and very rare at best along the eastern Piedmont and southwestern mountains. As late as 1990, it was known from only a few sites in the state, but recent mist-netting has shown that it is not overly rare in the state and is found over a good portion of the Coastal Plain.

SEASONAL OCCURRENCE: Hibernates in winter, but may be briefly active on mild winter days.

HABITAT: Almost always near fresh water, such as rivers, large creeks, and lakes, near forested areas. Favored habitats are swamps and bottomlands.

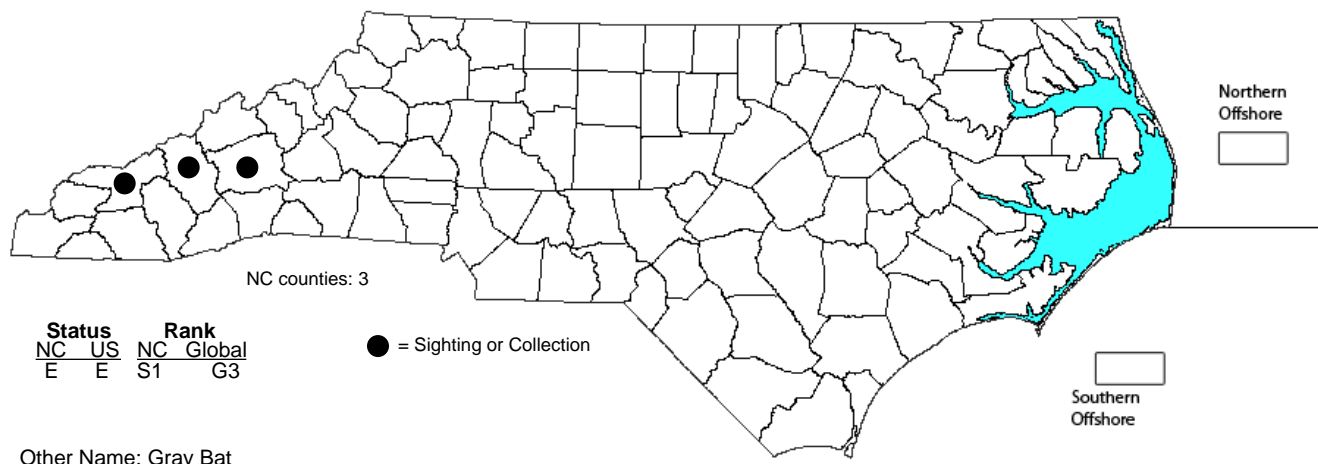
BEHAVIOR: Roosts in the warmer months in hollow trees, old buildings, under bridges, and at other sheltered sites. In winter, hollow trees or buildings are preferred roosting sites, where they occur in small colonies.

COMMENTS: This is still another bat species that has been considered for Federal listing, though not for White Nose Syndrome reasons, but mostly for loss of bottomland forests through logging and other human activities. The considerable use of mist nets has greatly improved our knowledge of distribution and abundance in the state. Webster et al. (1985) had only two county records -- Wake and Pender -- but we are now aware of records for at least 15 counties.

STATUS: Native

LIST TYPE: Official

Myotis grisescens Gray Myotis



DISTRIBUTION: In NC, occurs sparingly in the southern half of the mountains. No records yet from north of Buncombe County, though possible to occur there. Until about 2000, there was only a single record from the Asheville area, and the thought at that time was that the record was perhaps of a stray/vagrant individual in search of a roosting cave.

A small range for a bat species, occurring only from IL and OK eastward to WV, western NC, and northern FL.

ABUNDANCE: Rangewide, declining sharply, owing to heavy losses to White Nose Syndrome. In NC, casual to very rare, with only a handful of records. Status is poorly known, though it is possibly a regular resident species in some areas of the mountains. None of the NC records is from a cave.

SEASONAL OCCURRENCE: Hibernates in winter. Migrates up to several hundred miles from breeding areas to roost in large colonies at just one or two dozen cave sites within its range.

HABITAT: This species is more closely tied to caves at all seasons than are other bats, and it is especially habitat-specific, favoring limestone caves with creeks flowing through them. Thus, habitat in NC is nearly absent, though there are a few large caves (fissure caves) that might provide marginal roosting habitats.

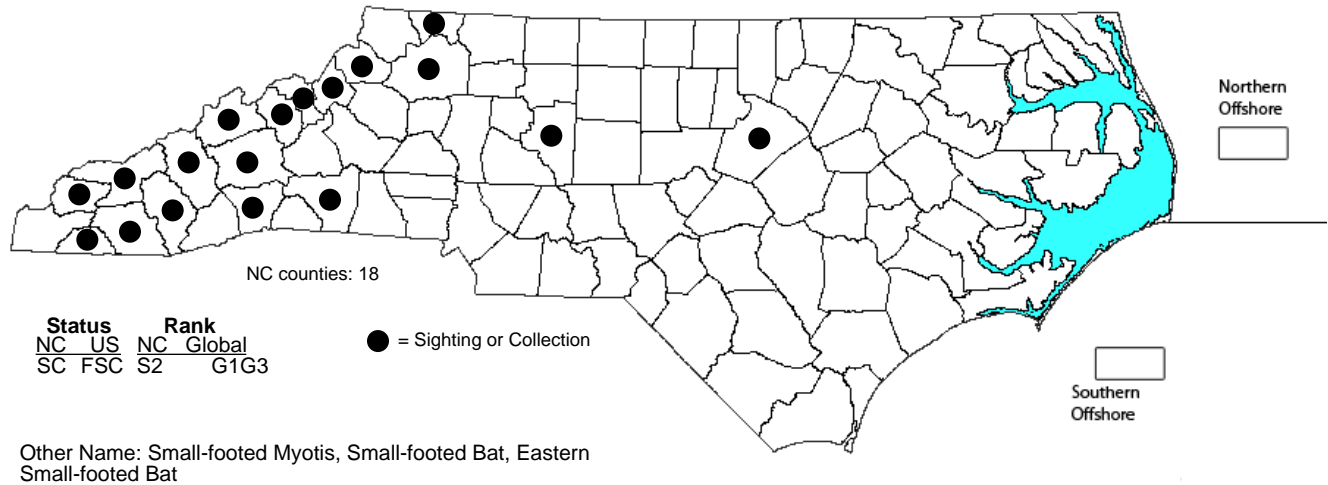
BEHAVIOR: These bats always forage at night over water, such as lakes, ponds, and rivers, fairly close to caves.

COMMENTS: The Gray Myotis has long been designated by the U.S. Fish and Wildlife Service as an Endangered species, and most of the relatively few caves where it breeds and roosts are gated, to prevent human entrance. As would be expected, White Nose Syndrome has severely impacted the species since the disease was first uncovered around 2008-09. In NC, this is the rarest and most poorly known of the montane bat species, but it is hoped that mist-netting efforts might reveal new populations in the mountains.

STATUS: Native

LIST TYPE: Official

Myotis leibii Eastern Small-footed Myotis



DISTRIBUTION: In NC, it is essentially restricted to the mountains, with most records from the southern half of the region. There is a specimen record for Davidson County, well into the Piedmont; it likely was a migrant or stray that far to the east. A "record" for Wake County probably relates to the Southeastern Myotis.

A fairly small range, as it was recently split from the "Small-footed Myotis"; ranges from southeastern Canada southward down the Appalachians and west to the Ozarks.

ABUNDANCE: Moderate decline over its range due to White Nose Syndrome. Formerly (prior to about 1990) thought to be quite rare in NC, but in recent years, with more mist-netting and cave surveys, it is better considered as rare to uncommon, at least in the southern half of the mountains. There has been some loss to the fungal disease in the state, but the species does roost in rock crevices and is not limited to caves, where the White Nose Syndrome is prevalent.

SEASONAL OCCURRENCE: Apparently non-migratory. Hibernates in winter.

HABITAT: In the warmer months, it roosts mainly in trees, but at times in buildings; in winter, it roosts in caves or in other rock crevices. It forages at night over forests.

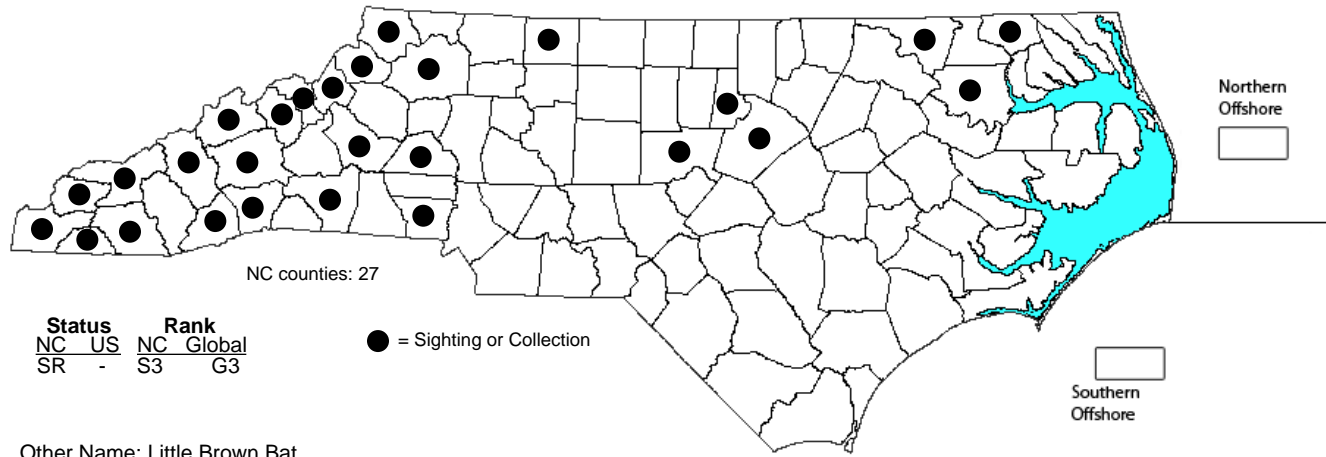
BEHAVIOR: Webster et al. (1985) state that it is "the last species of Myotis to enter torpor and the first to become active in the spring". Though a cave-roosting species, it occurs only in small colonies, especially in NC, and seldom are more than 5-10 individuals seen at any given place in the state.

COMMENTS: This species and the Western Small-footed Myotis (*M. ciliolabrum*) were until recently considered as the same species -- named *M. leibii* in some references and *M. subulatus* in others. As with most other cave-dwelling bats, White Nose Syndrome has hit this species fairly hard, and there was a proposal to Federally list it as Endangered or Threatened. However, on October 2, 2013, the U.S. Fish and Wildlife Service stated in the Federal Register that the species did not merit Federal listing, based on its status review.

STATUS: Native

LIST TYPE: Official

Myotis lucifugus Little Brown Myotis



DISTRIBUTION: In NC, it occurs throughout the mountains and Piedmont, but in the Coastal Plain occurs mainly or solely in the northern part of the province.

Occurs from coast to coast, one of the broadest ranges for any bat species; ranges from Alaska to Newfoundland, south to the Gulf Coast states.

ABUNDANCE: Strongly declining, owing to White Nose Syndrome. Not as numerous as would be expected in NC, as it is (or was before this fungal disease was discovered) a very common species across most of its range. In NC, widespread but uncommon over most of the mountains and Piedmont, and rare to locally uncommon in the northern Coastal Plain. Might possibly be absent in some counties in the southeastern Piedmont. Since about 2009, numbers have greatly declined in winter populations in caves in the mountains.

SEASONAL OCCURRENCE: Possibly a migrant in some areas, but generally believed to be non-migratory in most regions of the state. Hibernates in winter.

HABITAT: In the warmer months, breeds and roosts mainly in buildings, especially attics. Forages at night over ponds, rivers, creeks, and some forests. In winter, essentially all members of the species roost in caves and mines, though some in the eastern parts of the state must roost in buildings or other sheltered areas, as caves and mines are very rare there.

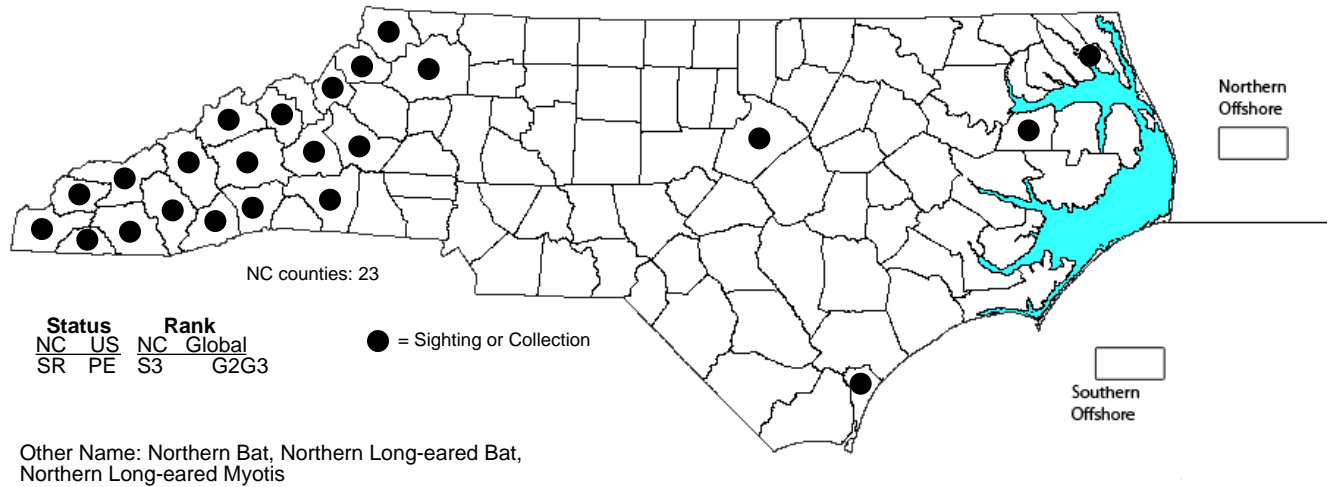
BEHAVIOR: Roosts in moderate sized groups in winter. In summer, females form fairly large maternity colonies in attics and other places in buildings.

COMMENTS: Bat biologists have been alarmed at the great decline, over 90%, in the overall population of this formerly very common bat species, as a result of White Nose Syndrome. Thankfully, it has a huge range, and it does not roost in such very large colonies as do the Gray Myotis and a few other species; thus, despite its huge losses, the future of the species is not quite as bleak as it is for other Myotis species. Mist-netting operations in the state, especially in the Piedmont and Coastal Plain, have greatly helped to clarify the range of the Little Brown Myotis. It, like the Northern Myotis, ranges more into the Coastal Plain than previously believed only 10-20 years ago.

STATUS: Native

LIST TYPE: Official

Myotis septentrionalis Northern Myotis



DISTRIBUTION: In NC, it occurs scattered over most of the state except for the southern Coastal Plain and the southeastern Piedmont.

As the name implies, this species ranges farther north than most other bats, occurring from Alberta and Newfoundland south sparingly to the Gulf Coast states, though generally scarce in the Southeast.

ABUNDANCE: Declining somewhat strongly, owing to White Nose Syndrome. In NC, generally uncommon in the mountains, rare to uncommon in the foothills, and rare over at least the northern Piedmont; rare and poorly known in the northern Coastal Plain. Likely absent from most or all of the southern Coastal Plain, and possibly some counties in the southeastern Piedmont.

SEASONAL OCCURRENCE: Year-round, and apparently not migratory. Hibernates in winter.

HABITAT: Generally in moderate to heavy forests, probably with creeks or other water nearby. Roosts in trees or buildings in the warmer months, rarely in caves. However, in winter, it uses caves and other heavily sheltered spots almost exclusively.

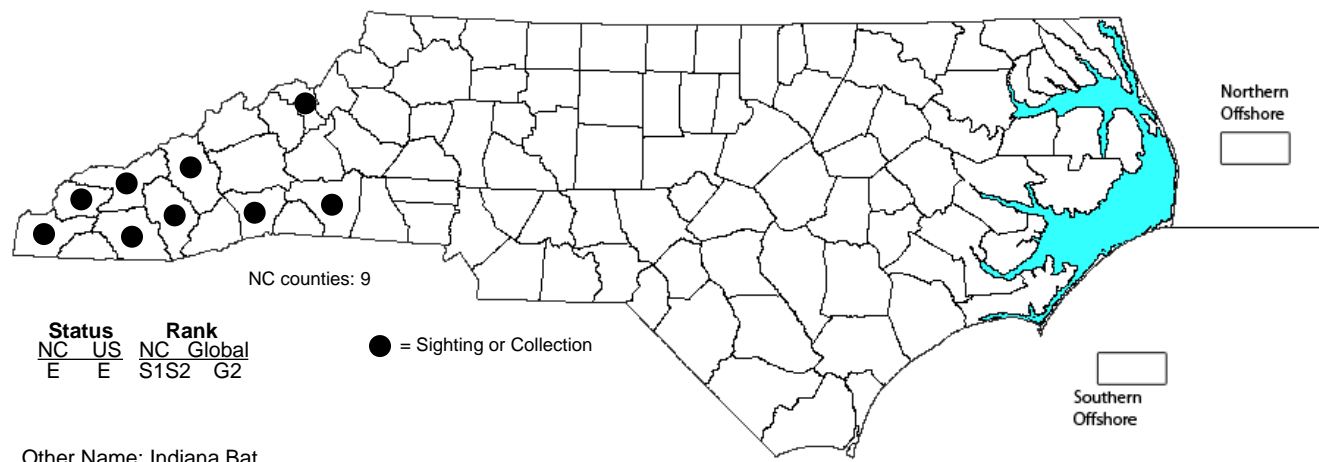
BEHAVIOR: Roosts singly or in small numbers, but never in sizable colonies. Forages well after dark.

COMMENTS: Until the 1980's, the species was thought to be limited in NC almost exclusively to the mountains, with an outlier record from Wake County. However, since then, many records from across the Piedmont, and even from the northern Coastal Plain, have been made through mist-netting. Thus, until a few years ago, it was not considered to be rare or in trouble in the state. But, as it roosts in caves in winter, though in small numbers at any given site, White Nose Syndrome may be a serious factor in a decline in the species, and there has been a proposal to list this species for Federal protection. In fact, on October 2, 2013, the U.S. Fish and Wildlife Service proposed the species for Federal Endangered status, with comments due within two months; a decision on the proposal will be made in 2014.

STATUS: Native

LIST TYPE: Official

Myotis sodalis Indiana Myotis



DISTRIBUTION: In NC, restricted to the mountain region, particularly in the southern half of the mountains. We are not aware of records yet for the northern counties (Alleghany, Ashe, Watauga, and Avery).

Ranges over much of the northeastern and east-central parts of the country, ranging mainly from the Appalachian Mountains west to MO.

ABUNDANCE: Strongly declining rangewide, owing to White Nose Syndrome losses. Rare in NC, as well as over its range. (It is a Federally Endangered species.) Status is poorly understood in NC, as it roosts in trees in summer, and thus is very difficult to survey except with extensive mist-netting efforts. In summer, mainly known from the southwestern counties, where it might not be rare, but there are still relatively few records. In winter, very rare to rare, and declining, in caves.

SEASONAL OCCURRENCE: Presumably migratory to an extent, as there is a shift in roosting habitats from forests in summer to caves in winter. However, it is not clear if the cave-dwellers in winter are local bats or are individuals that moved south from farther north.

HABITAT: In summer, primarily in rich forested areas, generally close to creeks, over which they likely forage. Most roost in trees (such as clumps of leaves or behind loose bark). A few roost in caves at that season. However, in winter, essentially all hibernate in caves, with limestone caves (very rare in NC) favored. Winter habitat in NC is caves, but generally in fissure caves (in felsic rocks).

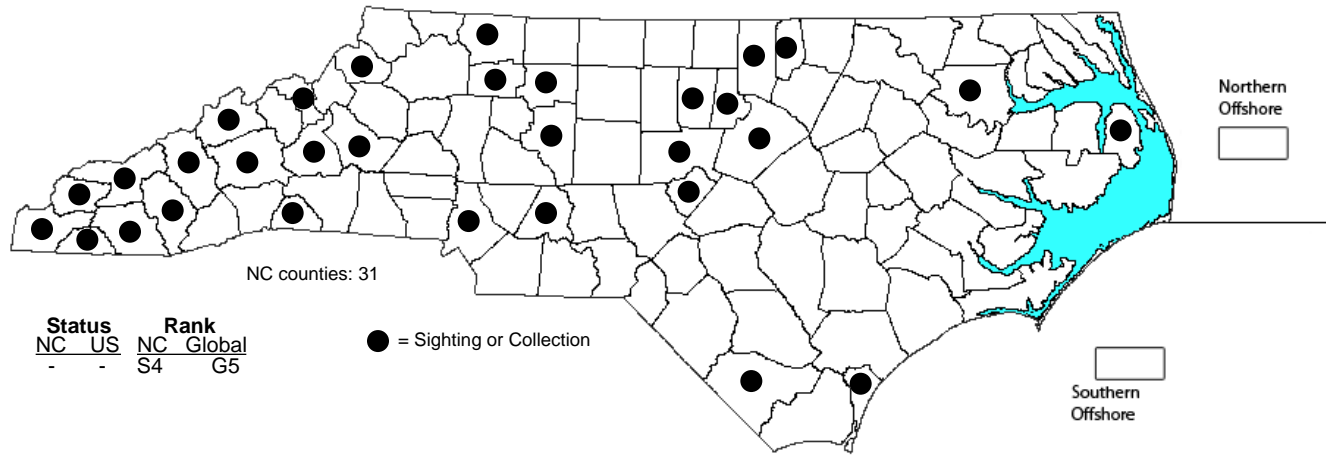
BEHAVIOR: They forage at night over forests and over creeks (in the warmer months). In winter, they roost in large colonies up to about 500 individuals. However, in NC, numbers are seldom more than 5-10 individuals, as the state lies at the far eastern edge of the range.

COMMENTS: There is considerable concern for the survival of the species, as it not only is rare, but as it also roosts strictly in caves, most of which have now been hit by White Nose Syndrome. Nearly all of the older NC records were of cave individuals in winter; however, recent mist-netting efforts in several far western counties during the warmer months have revealed the presence of the species in a wide array of forests. Thus, it could be somewhat widespread in summer in much of the mountains of NC, at least in the lower and middle elevations in the southwestern counties.

STATUS: Native

LIST TYPE: Official

Lasionycteris noctivagans Silver-haired Bat



DISTRIBUTION: In NC, it occurs over the entire state, but it is migratory and does not breed in much of the eastern half of the state. However, it is considered to winter statewide.

Ranges over nearly all of the lower 48 states and extreme southern Canada.

ABUNDANCE: In summer, it is rather uncommon to perhaps locally fairly common in the mountains and western half of the Piedmont, but is scarce at that season eastward. In migration and in winter, it ranges across the entire state, but is still generally uncommon to at best fairly common.

SEASONAL OCCURRENCE: Migratory, though seasonal patterns are not totally clear. Lee et al. (1982) state that it is a "Common migrant and winter resident statewide. May occur as an uncommon summer resident from Winston-Salem west."

HABITAT: Generally around wooded areas with permanent water, but forages mainly over water. It roosts in openings and crevices in trees, as well as in clumps of leaves. At times, they may roost in sheds and other buildings, though generally very close to forests. It does not inhabit caves.

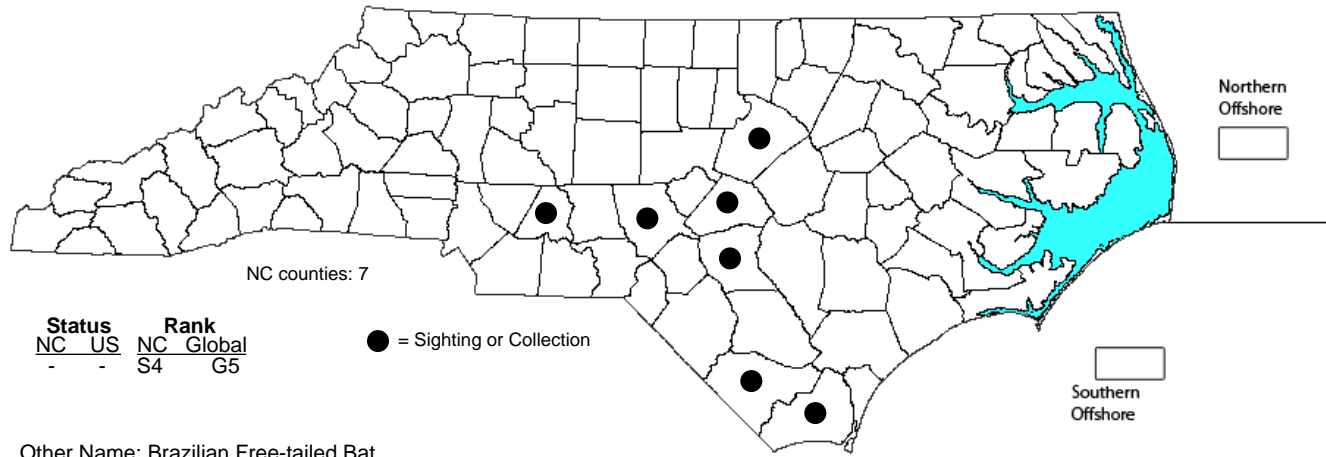
BEHAVIOR: This is a slow-flying bat that forages mainly over water during the hours of darkness. It does not roost in colonies and thus data are somewhat difficult to gather on the species.

COMMENTS: Though by no means a rare bat in the state, the fact that it is migratory, does not inhabit caves, and does not roost in colonies, makes it difficult to know the species well, and thus it is difficult to know about population trends in the state.

STATUS: Native

LIST TYPE: Official

Tadarida brasiliensis Mexican Free-tailed Bat



DISTRIBUTION: In NC, it was poorly known into the early 1980s (Lee et al., 1982), known then only from the southern Coastal Plain. However, it currently occurs over much or most of the Coastal Plain and most of the Piedmont, perhaps excepting the northernmost counties. It apparently has not yet been recorded in the state's mountain region, nor has it been reported from VA.

Occurs over much of the southern half of the US, and far into Mexico. The range in the Southeast has been greatly expanding northward in the past few decades.

ABUNDANCE: Increasing fairly rapidly in NC. Currently, fairly common to even locally common in the southern Coastal Plain, and uncommon to fairly common elsewhere in much of the Coastal Plain. Uncommon to locally fairly common in the southern half of the Piedmont.

SEASONAL OCCURRENCE: Generally inactive in winter, though not known if it regularly migrates out of NC at that season. Primarily seen during the spring to fall period in NC.

HABITAT: The species roosts essentially only in buildings in NC, mainly in large ones that can support sizable colonies. Foraging habitat typically includes lakes, ponds, and other bodies of open water.

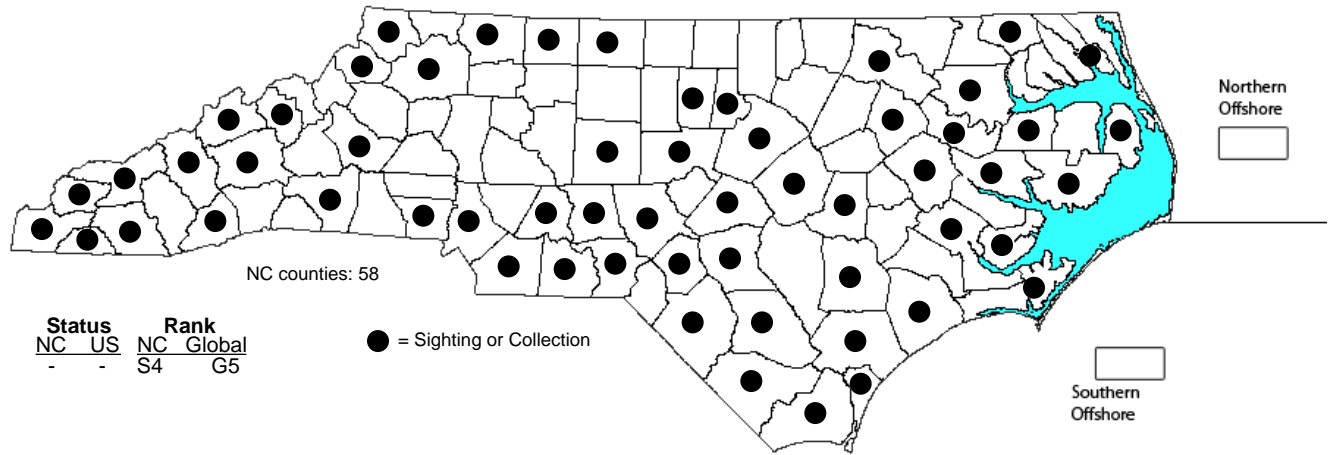
BEHAVIOR: They depart at night and forage mainly over and near bodies of water, higher up than most other bats. They roost in fairly sizable colonies in buildings.

COMMENTS: Though some references state that the species is declining over much of its range, such as in TX, it is clearly increasing and spreading northward in the Southeast. Nonetheless, this is certainly the most abundant bat in North America, and some colonies number over 10 million.

STATUS: Native

LIST TYPE: Official

Lynx rufus Bobcat



DISTRIBUTION: It occurs statewide in NC, likely in all 100 counties.

Occurs almost throughout the lower 48 states and extreme southern Canada, far southward into the tropics; it is absent in some Midwestern and Great Lakes areas.

ABUNDANCE: Because the species is primarily nocturnal and is secretive, abundance is mostly based on tracks. Apparently fairly common in the mountains, rare to uncommon in the Piedmont, uncommon to fairly common in the western Coastal Plain, and fairly common in the eastern Coastal Plain. It likely is most numerous on the Pamlico Peninsula and in the Dismal Swamp area, whereas it might be rare in parts of the western half of the Piedmont.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Mainly in extensive forested habitats, both in lowlands and in uplands. Some edges and fields can be present, but the majority of the home range lies in forests, well away from man. However, they often forage in fields and brushy areas at night.

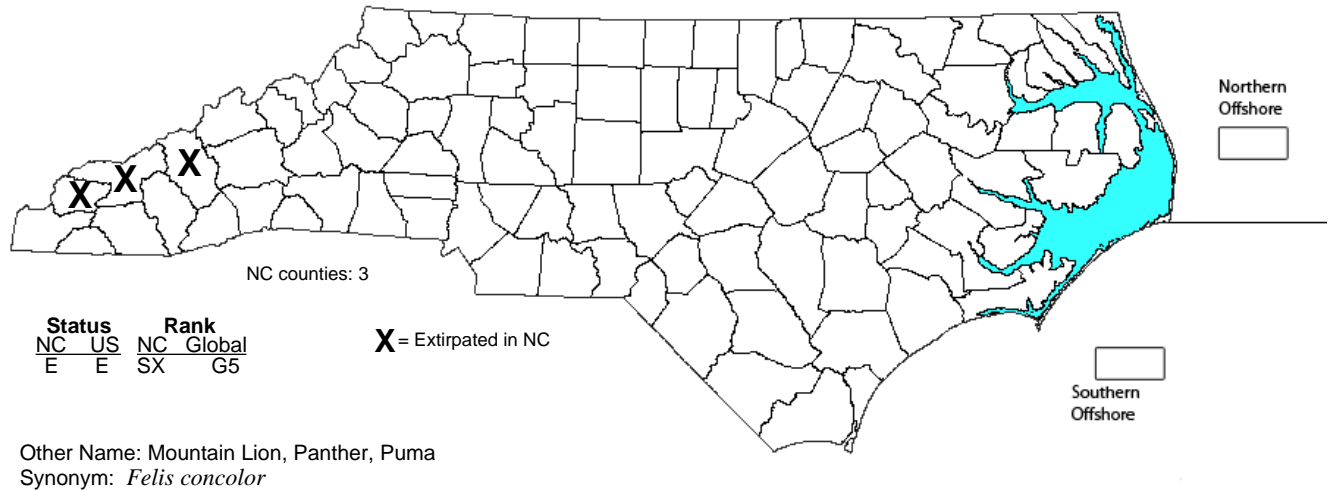
BEHAVIOR: Primarily nocturnal, but not unusual to see them about in twilight or very late afternoon, rarely during daylight. They tend to be quite secretive and shy, though at times can be seen walking along roads and wide trails, seemingly paying little attention to an observer. Even so, they tend to stay away from civilization, and are not often seen in residential areas.

COMMENTS: Numbers of Bobcats in the state seem to be holding up into the recent decades, despite the greatly increasing human population. They obviously are adaptable in their habitats, though still stay away from civilization, for the most part.

STATUS: Native

LIST TYPE: Official

Puma concolor Cougar



DISTRIBUTION: In NC, it apparently occurred statewide into the 1800's, as there are "Panther" place names scattered across the state. However, the species strongly declined over the past 150 years or more; the last likely valid records were in the 1880s [Lee et al. (1982)]. Though there were rumors of "Panther" sightings in the state into the 1980's, the few recent specimens were of known or presumed escaped or pet individuals. Most agencies consider the species to be extirpated in NC.

Formerly occurred over most of North America. Currently, limited to the western third of the continent, from the Rockies to the Pacific, though it occurs into Central and South America; a few still occur in southern FL.

ABUNDANCE: Former abundance in NC was not known. It is now presumably absent in the state, leaving FL as the only state east of the Mississippi still having wild Cougars.

SEASONAL OCCURRENCE: Occurred year-round.

HABITAT: Formerly in NC likely occurred in extensive forests, including swamps and other wetlands. Over most of its range, it favors mountains and other rocky area with forested cover.

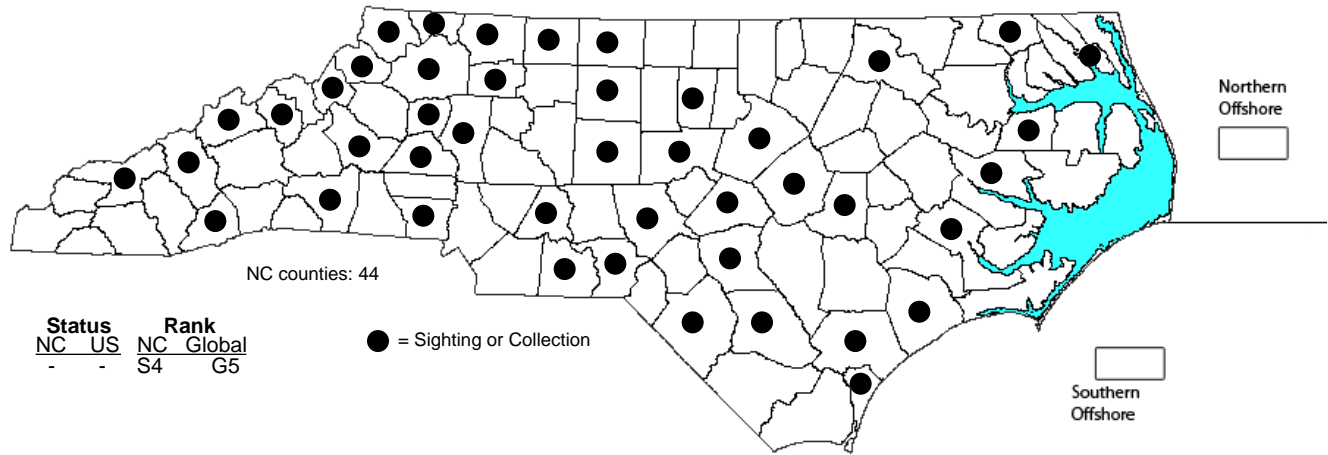
BEHAVIOR: It is strictly nocturnal in its activity.

COMMENTS: Sight reports still persist in NC into the 21st Century, but such reports are declining. Even photos would not be conclusive now, as escaped pets and zoo animals still occur from time to time.

STATUS: Extirpated

LIST TYPE: Official

Canis latrans Coyote



Synonym: *Canis lupus latrans*

DISTRIBUTION: In NC, perhaps now occurs over nearly all of the state, and possibly in all counties. Some local introductions in the state are also documented and have helped to spread the species in the state.

Formerly, prior to the middle 20th Century, they occurred mainly from the middle parts of the continent westward to the Pacific Coast. By around 1980, Coyotes were still poorly known from NC, with relatively few records. However, the species has quickly spread to the Atlantic coast, and by the early 2000's, it likely occurs over all of NC.

ABUNDANCE: Increasing fairly rapidly in the state. Now, it is uncommon to common over most of the state, perhaps least numerous in the southeastern counties and on barrier islands. Coyote tracks are not difficult to find in many places, and roadkills are becoming more frequent, clear signs of an increase in the population in our state. (Details of abundance within various parts of the state are not well documented.)

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: The species has spread eastward as a result of large-scale land-clearing, and thus they favor a mosaic of forested areas and farmlands and fields. Forests should have denning areas such as thickets, rocky places, and other dense cover. Thus, its habitat appears to be rather similar to that of the Red Fox in the state.

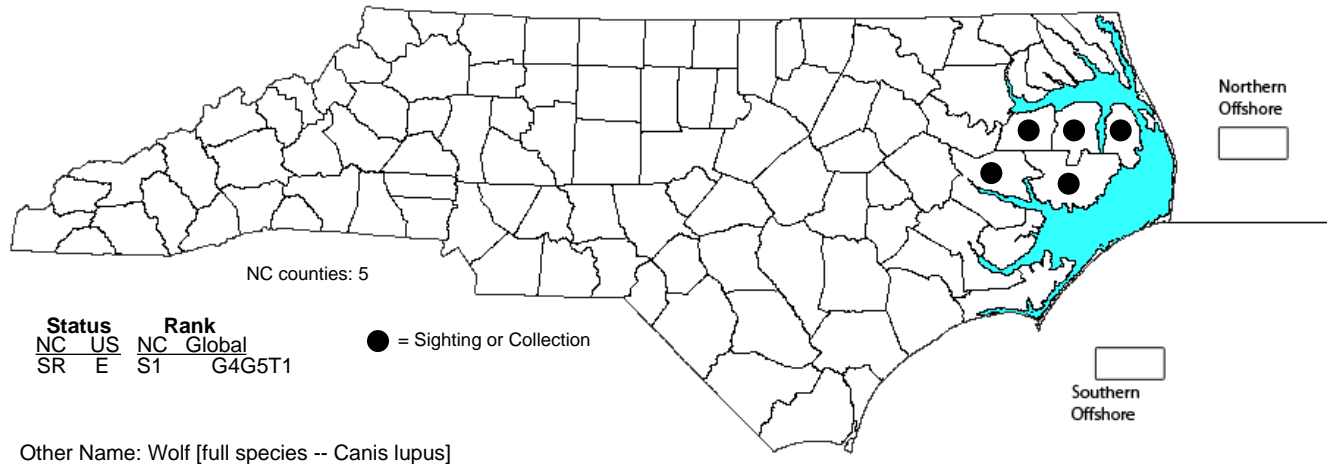
BEHAVIOR: Coyotes are nocturnal and crepuscular feeders, seldom seen abroad during daylight hours. They hunt singly or as pairs, almost never in groups (in the East). Though their wailing, yapping calls are frequently heard in the West, such calling seems to be infrequent in the East.

COMMENTS: The spread of the species into NC and other eastern states has been astonishingly quick. Prior to about 1990, people were lucky to see a live or dead Coyote in NC, but now roadkills can be seen a few times a year by observant biologists. Tracks are often found in dirt or mud, as well, by those knowledgeable about such animal signs.

STATUS: Native

LIST TYPE: Official

Canis lupus rufus Red Wolf



DISTRIBUTION: There had never been a documented record for our state prior to the mid-1980's; however, wolf biologists believe it did occur in the eastern portion of the NC Coastal Plain. In the late-1980's, the U.S Fish and Wildlife Service began a captive breeding and release program in Alligator River NWR, Dare County. A few individuals were radio-collared and released, and since then, the population has expanded in "the wild", to over 100 individuals, helped along with additional releases from that area. The species now ranges west at least to Washington County and to Beaufort County. In the 1990's, a small number were released across the state line in eastern TN, in Great Smoky Mountains NP; however, this population declined quickly, and remaining individuals were captured.

Historically, the Red Wolf occurred from eastern TX to at least coastal SC, presumably eastern NC, and perhaps as far north as PA.

ABUNDANCE: Currently (2013), it is uncommon to fairly common on mainland Dare County, and uncommon west to Washington and Beaufort counties, and south to Hyde County.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Favors extensive wetland forests and pocosins; nonriverine swamps are preferred. However, wolves often feed in adjacent fields and wooded edges.

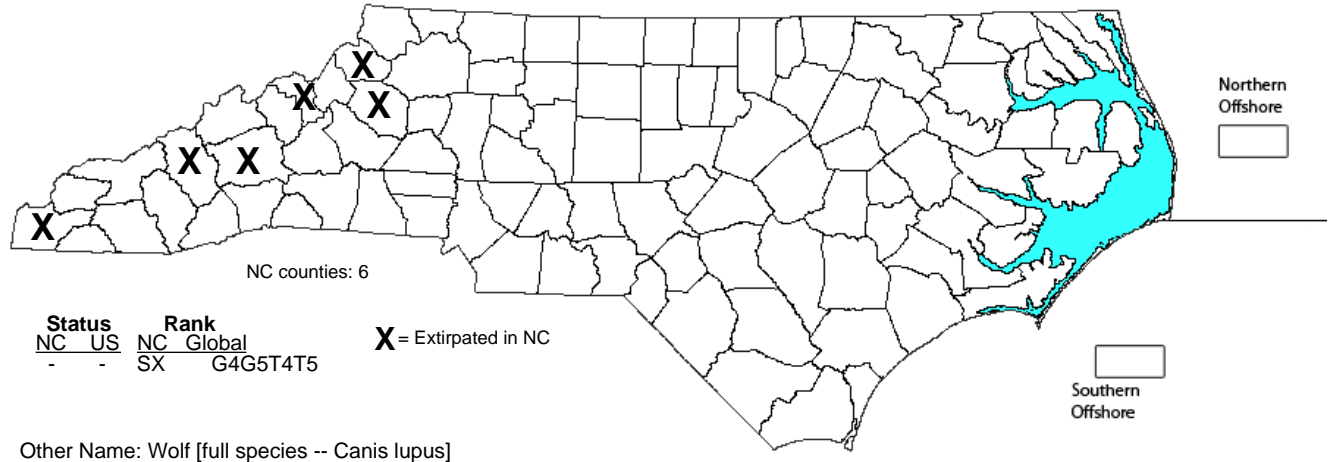
BEHAVIOR: Red Wolves are nocturnal and crepuscular, though they can occasionally be seen during the day if it is dark or otherwise cloudy. They do not generally feed or occur in packs, though perhaps groups of 3-4 may be present. Usually when seen in NC, they occur as singles or at most two individuals.

COMMENTS: The most recent checklists have considered the Red Wolf the same species as the Gray Wolf, because of interbreeding and perhaps other factors. The combined species common name is simply "Wolf". The population in eastern North Carolina is an Experimental Population, as named by the U.S. Fish and Wildlife Service. Thus, even though it is listed by that agency as Endangered, it has different regulations regarding its protection than does a "non-experimental" population of an Endangered animal species.

STATUS: Native

LIST TYPE: Official

Canis lupus lupus Gray Wolf



DISTRIBUTION: In NC, it has been extirpated since the latter decades of the 19th Century, but it possibly occurred into the early part of the 20th Century. It was definitely known from the mountains, and likely occurred over much or most of the state, based on various placenames, such as creek names.

Formerly occurred over much, if not most, of North America, except for some of the Southeastern states. Currently, it is found only in the northwestern part of the United States and in northern and western Canada.

ABUNDANCE: Extirpated in NC. Lee et al. (1982) state that the last official state record was in 1887, in Haywood County.

SEASONAL OCCURRENCE: Occurred year-round.

HABITAT: Presumably in remote, heavily forested areas, well away from man/civilization. Such areas were likely rocky, steep, and densely vegetated, though it presumably fed in fields and other open country, as well as in forests.

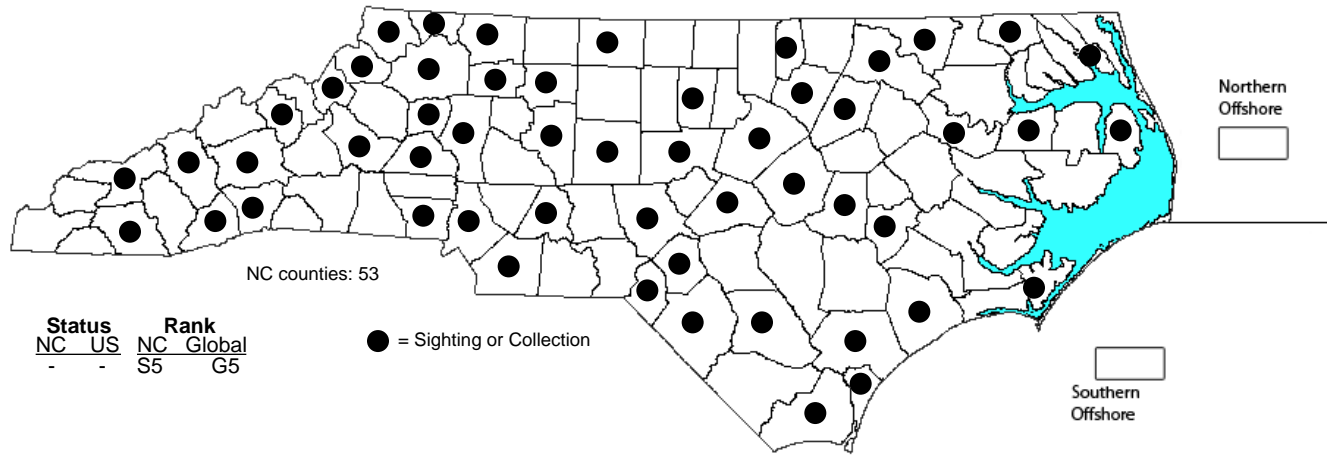
BEHAVIOR: Gray Wolves range in packs, averaging about 6 individuals. They feed mainly at night.

COMMENTS: Lee and Funderburg (1977) indicate that there was an unverified report of one killed in 1933.

STATUS: Extirpated

LIST TYPE: Official

Vulpes vulpes Red Fox



DISTRIBUTION: In NC, it occurs statewide, presumably being found in all counties.

One of the most widespread ranges of any North American mammal, ranging from Alaska and northern Canada south through most of the lower 48 states.

ABUNDANCE: Currently, it is common in the mountains, fairly common in the Piedmont, and uncommon to fairly common -- but increasing -- in the Coastal Plain. The species may have been absent during colonial times (1600's and 1700's), but through local stocking for hunting, and range expansion with the clearing of forests, it has expanded into the state in the past 300 years, and into all parts of the Coastal Plain in recent decades.

SEASONAL OCCURRENCE: Present and active year-round.

HABITAT: More of an open-country species than is the Gray Fox. Favors overgrown fields, clearcuts, hedgerows, and other brushy areas and forest edges; not normally within the interior of forests.

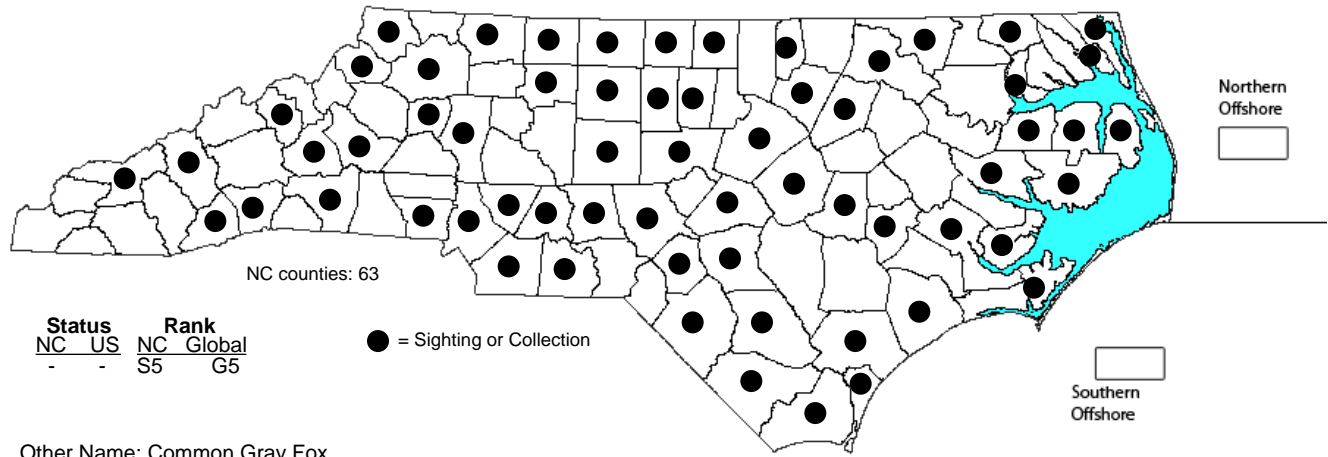
BEHAVIOR: The species is primarily crepuscular and nocturnal in its feeding behavior, and is infrequently seen during the daylight hours. As with the Gray Fox, it is quite shy and secretive for a fairly large mammal.

COMMENTS: Some mammalogists consider the Eastern populations to have been introduced from Europe, for fox hunting purposes, and thus they consider the species not to be native in NC and other states in the East. However, as the Coyote has spread eastward in recent decades with the clearing of forests, probably the majority of biologists consider Red Fox populations in the East to be a mix of introduced populations and native populations. Red Foxes have greatly increased in the past several decades on coastal islands, and this species (as well as the Gray Fox) has been a detriment to beach-nesting birds.

STATUS: Native

LIST TYPE: Official

Urocyon cinereoargenteus Gray Fox



DISTRIBUTION: In NC, it occurs statewide, almost certainly in all 100 counties.

Occurs from extreme southern Canada nearly throughout the United States, south into Mexico.

ABUNDANCE: Generally common (to locally very common on some islands) throughout the Coastal Plain and Piedmont, at least for a moderately large mammal. Less numerous in the mountains, though at least fairly common in the lower elevations, but uncommon in the higher mountains, and rare to absent above 4,000 feet. It is often quite numerous on large barrier islands.

SEASONAL OCCURRENCE: Occurs year-round, and active at all seasons.

HABITAT: Generally within extensive forests, or forests mixed with brushy fields and clearcuts. Wooded areas can be wetlands or uplands, but bottomland forests are preferred. The forests should have moderate to dense cover, such as rock outcroppings or thickets. They forage in forests as well as in fields, and will forage around wooded residential areas, as well.

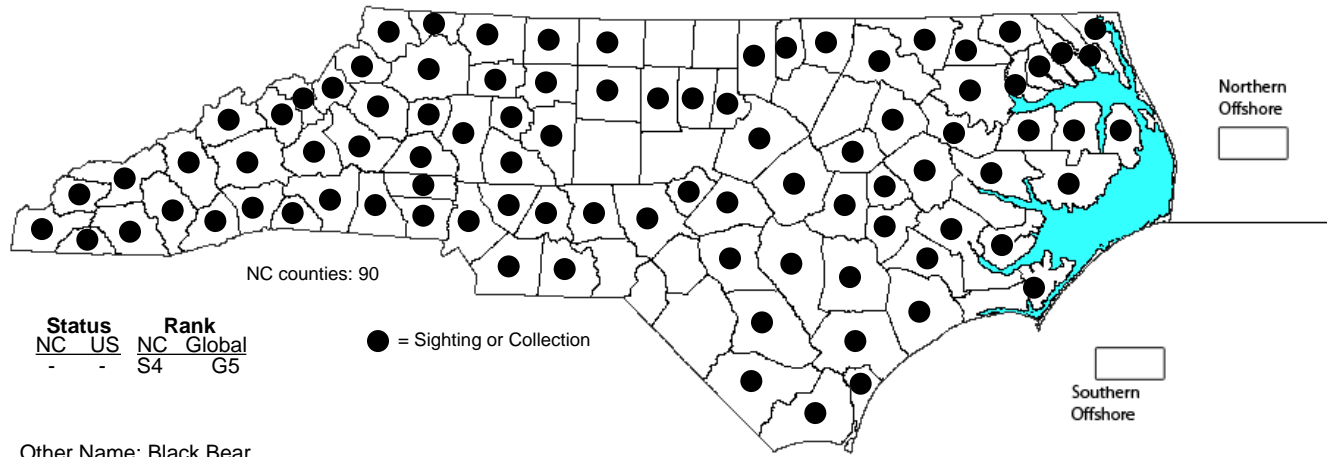
BEHAVIOR: The species is primarily nocturnal in its activity, and is not often seen by the public during daylight hours.

COMMENTS: Gray Foxes have apparently increased in the state in recent decades, as they are seemingly adapting to wooded residential areas. They are more frequently seen than Red Foxes, even though the latter species occurs in more open country than does the Gray Fox.

STATUS: Native

LIST TYPE: Official

Ursus americanus American Black Bear



DISTRIBUTION: In NC, bears have a bimodal distribution -- essentially only in the mountains and Coastal Plain. Though it occurs essentially throughout the mountain province, in the Coastal Plain it is found mainly in the lower Coastal Plain, inland to the lower Roanoke River floodplain, the lower Neuse River floodplain, the Bladen Lakes (Carolina bay lakes) area, and the Waccamaw River floodplain, but only sparingly in the Lumber River floodplain. Records for the Sandhills region and the Piedmont are primarily of strays or transients, though it likely is a resident in the South Mountains and perhaps the Brushy Mountains.

Occurs over most of North America, from Alaska to Newfoundland, south into Mexico. However, over this range it is found mainly in mountainous areas, as well as on the south Atlantic Coastal Plain.

ABUNDANCE: Fairly common to locally common in much of the lower Coastal Plain, though scarce away from conservation areas. Very rare in most of the upper half of the Coastal Plain. Absent to very rare migrant through nearly all of the Piedmont. Various uncommon to locally common in the mountains, most numerous in large forested areas, such as Great Smoky Mountains NP.

SEASONAL OCCURRENCE: Bears frequently hibernate in the winter in the mountains, and thus are seldom seen during that time. They can be active in the Coastal Plain all year, denning in thickets or other dense, evergreen cover. Even so, they are less active in winter than at other seasons in that region.

HABITAT: Bears favor extensive forested areas, of various kinds. In the Coastal Plain, they are most numerous in extensive pocosins and nonriverine swamps, less so in riverine floodplains. They also occur in extensive pine stands, such as pine plantations, as long as there is a dense shrub and understory cover; areas of greenbriers are also preferred. They are not often seen in uplands in the Coastal Plain. However, extensive forested wetlands are rare in the mountains, and thus mostly occur in hilly areas with many boulders and small caves (for denning sites). Favored habitats there should have much evergreen cover, such as rhododendron and mountain laurel stands.

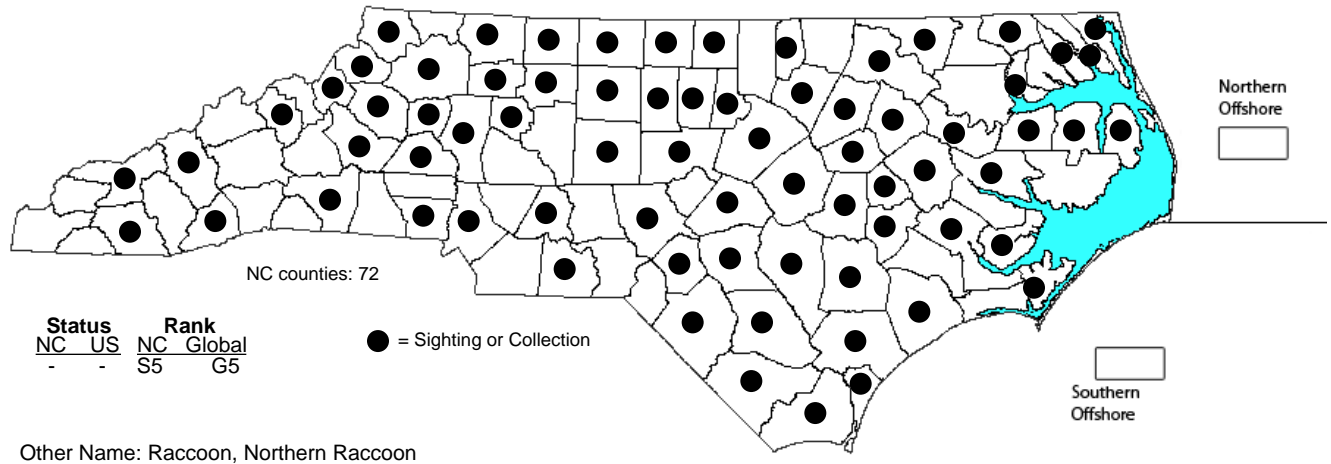
BEHAVIOR: Bears are active at all times of the day, though they prefer crepuscular conditions. They forage on a wide variety of plant and animal matter, favoring berries for the colder months. They are most often seen along logging roads and jeep tracks, or along field margins, and are not normally seen inside forests (though that is where they spend most of their time).

COMMENTS: During historical times, bears ranged across all of the state, but with civilization, clearing of forests, and uncontrolled hunting, bears disappeared from the Piedmont and upper Coastal Plain. The Coastal Plain range continued to shrink into much of the 20th Century, as large areas of pocosins and nonriverine forests were cleared for agriculture and pine plantations. However, bears have started to adapt to such pine stands, and populations are now increasing in the Coastal Plain.

STATUS: Native

LIST TYPE: Official

Procyon lotor Common Raccoon



DISTRIBUTION: Occurs throughout NC, and certainly present in all 100 counties.

Essentially throughout the lower 48 states and southern Canada, south into Mexico.

ABUNDANCE: Raccoons are abundant in the Coastal Plain, slightly less so in the Piedmont (i.e., very common), and generally common in the mountains.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Raccoons are usually found near water, mainly fresh water -- swamps, lake and pond margins, canals, marshes, and estuary edges. They range into wooded residential areas, even in places well away from wetlands. However, in most areas they are not found in dry habitats.

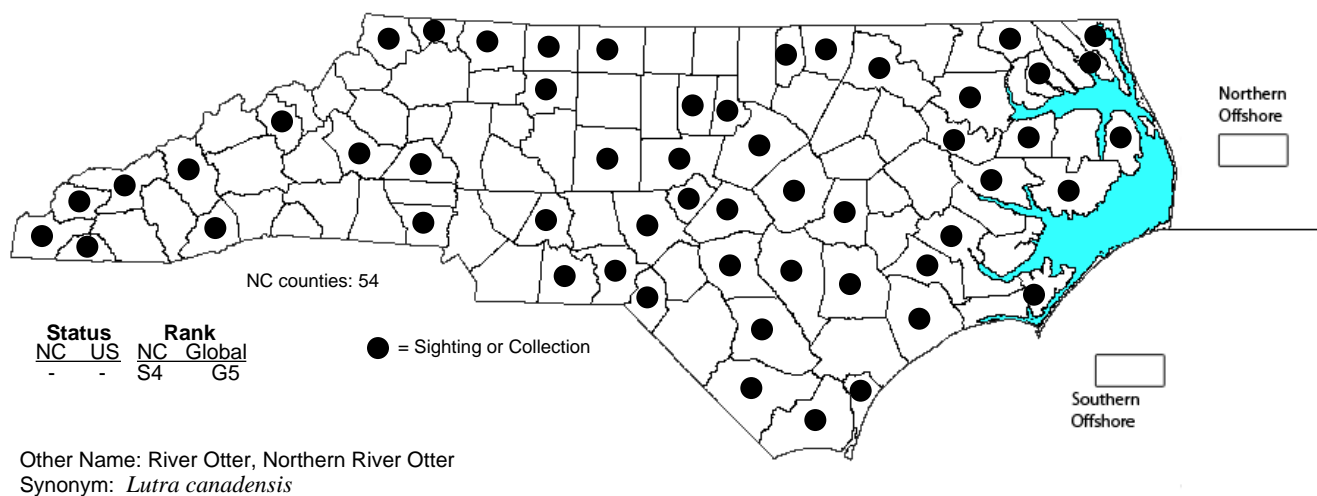
BEHAVIOR: Primarily nocturnal, but at times seen during the day, mainly in cloudy weather. They are usually seen close to water, such as along shores, on mudflats, in ditches and canals borders, marshes, etc. In residential areas, they often raid garbage cans and even take food left out for pets.

COMMENTS: Raccoons have certainly increased across their range, and in NC, in recent decades. Though predators such as Coyote have increased in that period, the increase in open water areas such as beaver ponds and an increase in garbage dumps, residential areas with food, and other sites with food have helped the adaptable Raccoon expand its numbers.

STATUS: Native

LIST TYPE: Official

Lontra canadensis North American River Otter



DISTRIBUTION: In NC, it occurs across the entire state, but is of spotty occurrence in much or most of the mountains and Piedmont. It is likely absent from some such counties in the western half of the state.

Occurs over most of North America, from Alaska to Newfoundland, and south to FL, TX, and CA; however, it is absent now in much of the southern plains and the desert region.

ABUNDANCE: Otters are found primarily in the Coastal Plain, where they can be fairly common to locally common around estuaries, lower portions of rivers, large creeks, and canals -- in the Tidewater area and eastern Coastal Plain. Farther inland, they are uncommon to fairly common in the remainder of the Coastal Plain, generally uncommon in the eastern Piedmont, and rare to locally uncommon farther westward. During historical times, it was more widespread, but it has declined greatly in the 20th and 21st Centuries, though it is making a comeback in some places.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Otters, as is well known, are strictly in habitats associated with water, primarily fresh, but also in brackish and rarely salt water situations. Favored habitats are lakes, large ponds, canals, and edges of estuaries.

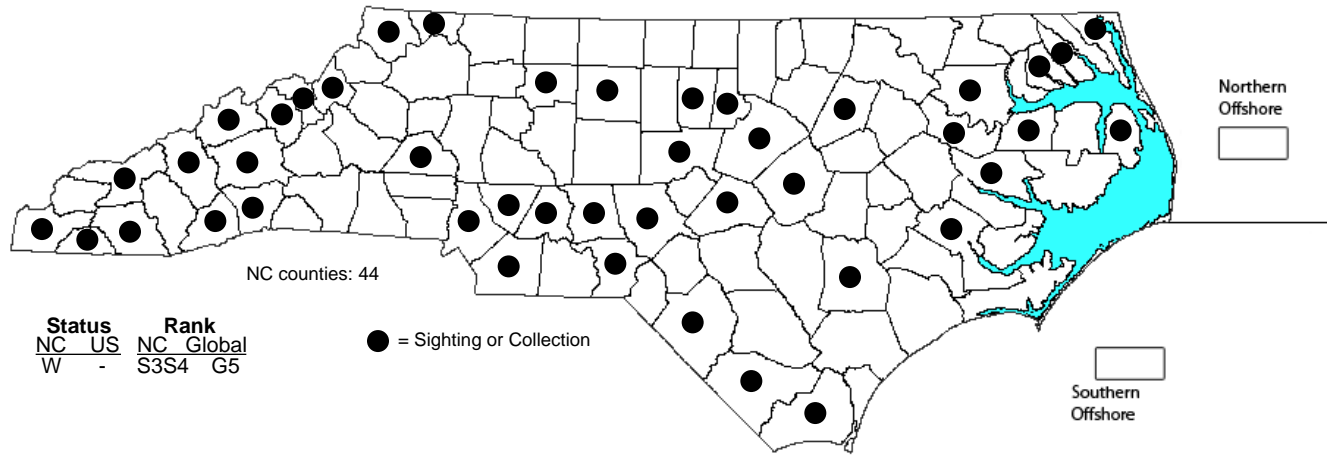
BEHAVIOR: Otters spend most of their time in shallow water, but at times come on land, primarily to move to new ponds or canals. They forage in the water. They are active in both day and night, but are most active near dawn and dusk.

COMMENTS: Otters are among the most enjoyable mammals for the public to observe, as they are somewhat uncommon, and they are often curious, as well as quite energetic/active. The increase in reservoirs, farm ponds, and beaver ponds in the past few decades has probably resulted in a turnaround in numbers, and otters are likely on the increase now in the state.

STATUS: Native

LIST TYPE: Official

Mustela frenata Long-tailed Weasel



DISTRIBUTION: It occurs throughout NC.

Nearly throughout the lower 48 states, except in the far southwestern deserts; also in southern Canada, and southward into Mexico.

ABUNDANCE: Despite it occurring probably in all 100 counties of the state, it is uncommon and very difficult to observe. Abundance from province to province is not obviously different. Perhaps numbers are declining, and roadkills are very seldom seen.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Generally within forests, or along and near their edges; also occurs in brushy areas, but unlike the Least Weasel, does not generally occur in extensive open areas. Infrequent in wetlands.

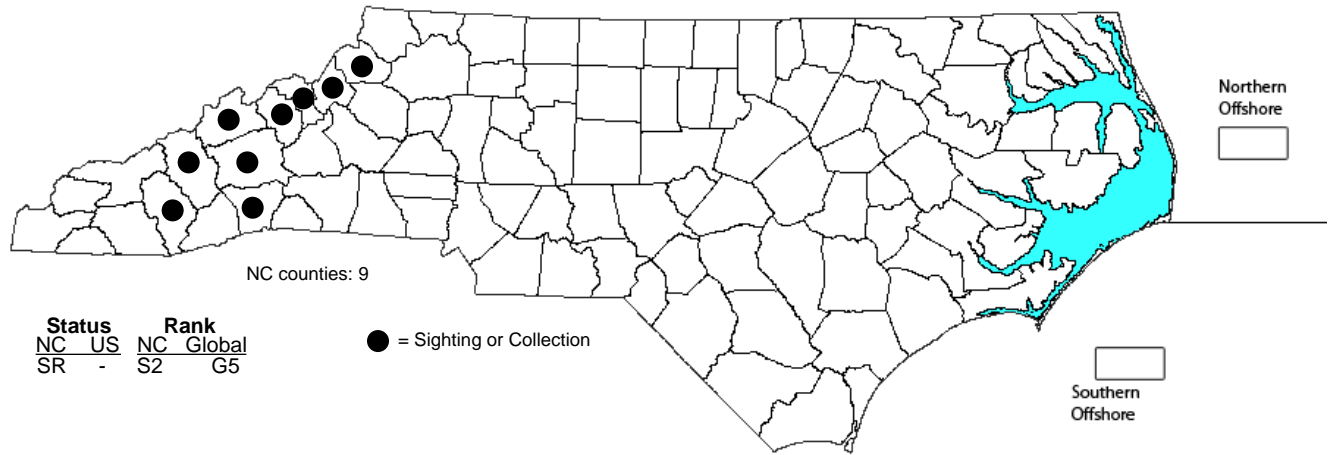
BEHAVIOR: Very active, both day and night, but seldom seen because of its secretive nature and presumably small numbers. Swims fairly well.

COMMENTS: For a species that occurs from high mountains to the coastal areas in the state, the species is poorly known by most people, and few are seen alive. Even roadkills are seldom noted. The species has perhaps declined over the past few decades, as its predators, such as Coyotes and foxes, have increased in that time period.

STATUS: Native

LIST TYPE: Official

Mustela nivalis Least Weasel



DISTRIBUTION: In NC it is strictly found in our mountains. Even so, records are known down to 1,600 feet (Lee et al. 1982); thus, it is not a resident of just the higher mountains in the state.

Occurs over most of Canada and Alaska, southward only to the northern 48 states. The range does extend southward into most of the Appalachians.

ABUNDANCE: One of the most poorly known mammals in the state, with fewer than 20 records known. Thus, it is presumed to be rare south to Jackson County; might be absent in counties west of Jackson, though it ought to occur in Macon and Swain counties.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Mostly in open, upland areas, such as fields and brushy places, and wooded borders/edges; perhaps also in marshes or bogs. Not typically found in extensive or deep forests.

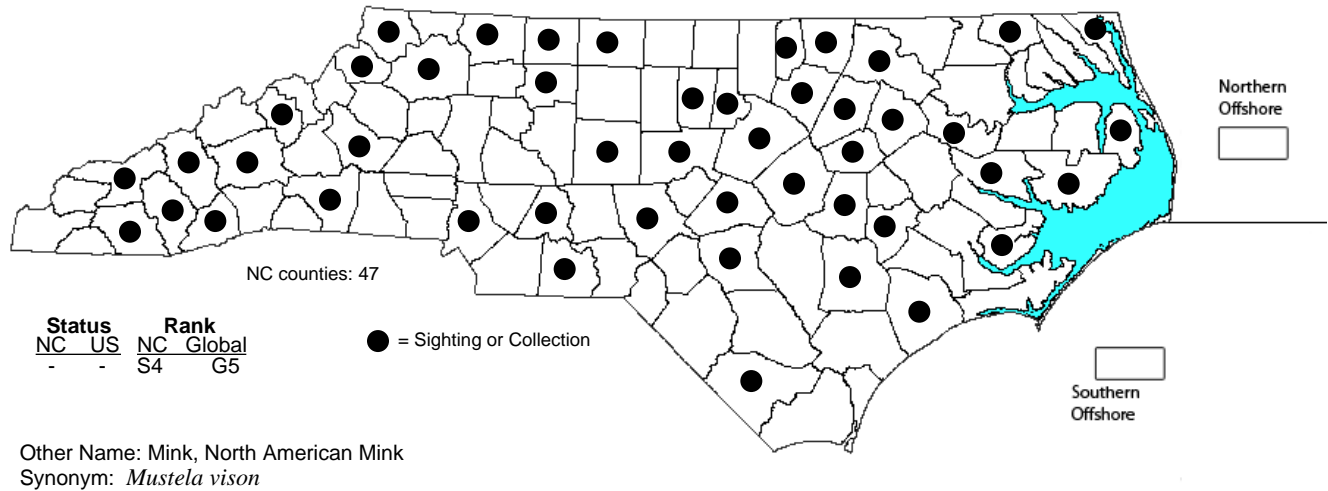
BEHAVIOR: The Least Weasel is a very active and agile mammal, quickly darting into cavities and tunnels and other crevices. It is apparently mostly nocturnal, though weasels can be active during the day. Because of their very small size, they are very secretive, and few people have seen a live Least Weasel in the state.

COMMENTS: This species is probably undergoing a decline in the state, as there have been very few records in the past 20 years. Though habitat loss is not likely a problem, the increase in its predators, such as foxes and Coyotes, may be at least partly responsible for its scarcity now.

STATUS: Native

LIST TYPE: Official

Neovison vison American Mink



DISTRIBUTION: In NC, it occurs essentially statewide, though there are few if any records for the extreme southern Coastal Plain.

Occurs over most of the North American continent, north of Mexico, though it is absent over portions of some southern states.

ABUNDANCE: Though it is not a scarce species in the state, it is infrequently seen, and roadkills are also infrequent. Thus, it is best stated to be uncommon over most of the state, though fairly common at least locally in some northern coastal areas.

SEASONAL OCCURRENCE: Occurs year-round.

HABITAT: Minks are well-known to be semi-aquatic, and generally occur very close to lake and pond shores, river/creek margins, swamps, and even estuaries. They also occur in marshes. They are seldom seen in upland situations.

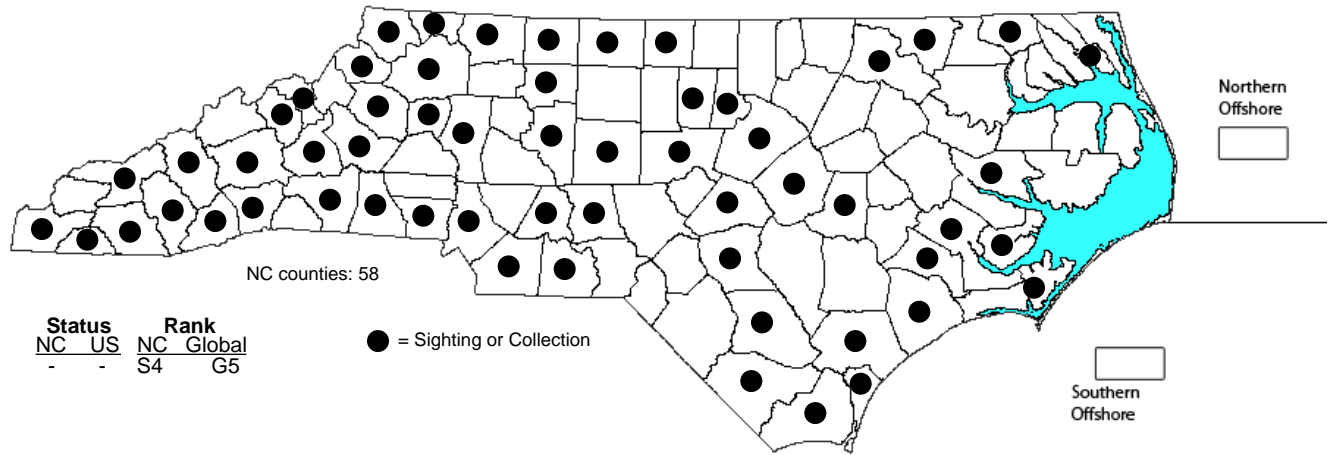
BEHAVIOR: They are mostly nocturnal, though they can be occasionally seen during the day. They swim quite well.

COMMENTS: Because of their mostly nocturnal habits, Minks are certainly more numerous than most people would assume. Even so, observations are infrequent.

STATUS: Native

LIST TYPE: Official

Mephitis mephitis Striped Skunk



DISTRIBUTION: In NC, it currently ranges throughout the mountains, nearly throughout the Piedmont, and in the northern quarter of the Coastal Plain (mainly in counties near the Virginia line). Prior to the 1980's, it occurred southeastward to the southern half of the Coastal Plain, north to Johnston and Beaufort counties. However, it declined steeply in recent decades in the Coastal Plain, and until recently it was essentially extirpated from the province and the southeastern corner of the Piedmont. However, it is making a comeback, and it has been found in some northern Coastal Plain counties and in the northeastern Piedmont; however, it seems to be absent over most of the Coastal Plain now.

The most widely distributed skunk, ranging from the Pacific to the Atlantic, covering nearly all of the coterminous 48 states and southern Canada.

ABUNDANCE: This is a common medium-sized mammal across most of its overall range; many are killed on roads. In NC, it is relatively common in the mountains, fairly common in the foothills and western Piedmont, mostly uncommon in the central and eastern Piedmont, and rare to uncommon in the northern Coastal Plain. It appears to be absent over most of the Coastal Plain now. The species is clearly increasing in the northeastern Piedmont and adjacent northern Coastal Plain, for unknown reasons.

SEASONAL OCCURRENCE: Occurs year-round, and it is not migratory (in elevation).

HABITAT: The Striped Skunk occurs in habitats similar to that of the Spotted Skunk -- a variety of forested and field habitats, mainly in a mosaic of such habitats. Rocky and other upland forested areas are favored; it seldom occurs in floodplains and other wetlands. It regularly occurs in wooded or semi-wooded residential areas, more so in the mountains than well downstate.

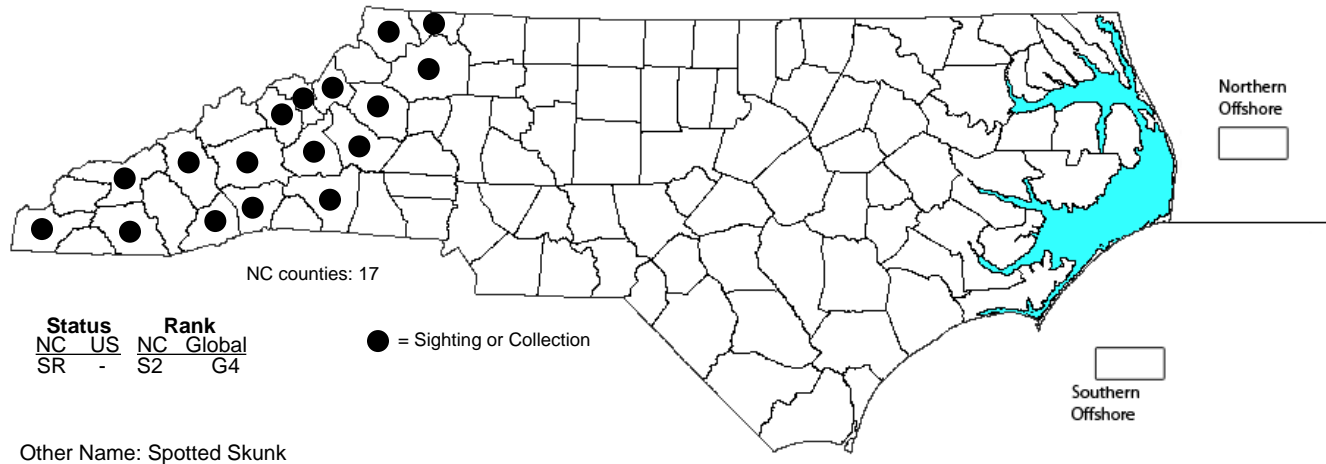
BEHAVIOR: Strictly nocturnal, and thus rarely seen except as roadkills.

COMMENTS: This species undergoes widespread and somewhat mysterious die-offs, and then local increases. Lee et al. (1982) "assume that various diseases periodically eliminate skunks over sizable portions of their range". For example, range maps in Lee et al. (1982) and other books indicate that it occurs throughout the Piedmont, but it has been nearly absent from well-studied Wake County for several decades, though apparently it is now returning.

STATUS: Native

LIST TYPE: Official

Spilogale putorius Eastern Spotted Skunk



DISTRIBUTION: In NC, it is strictly limited to the mountains, where it occurs from VA to SC and GA; there are apparently no records from below the Blue Ridge Escarpment (i.e., Piedmont). However, it has a wide altitudinal range in the mountains, though apparently favors the higher elevations.

Occurs throughout the central portion of the continent, eastward to PA and southward into FL. However, it is generally absent in the Piedmont and Atlantic Coastal Plain of most states.

ABUNDANCE: The species is not common within its fairly large range, and in NC it is now generally rare to uncommon, and likely is declining. Lee et al. (1982) found it widely distributed, and "relatively common" in certain habitats. However, in recent decades, records have been slow to accumulate, and it seems to be less numerous now than in the early 1980's.

SEASONAL OCCURRENCE: Occurs above ground-year round and presumably does not show altitudinal changes.

HABITAT: This species favors a mix of forests and fields, especially where the forests are rocky or have other den sites. Hardwood or mixed forests are probably favored to coniferous ones. Where there are cliffs or talus slopes, the species might be more numerous than elsewhere. The species also occurs around sheds, barns, and other structures, as long as there are denning places.

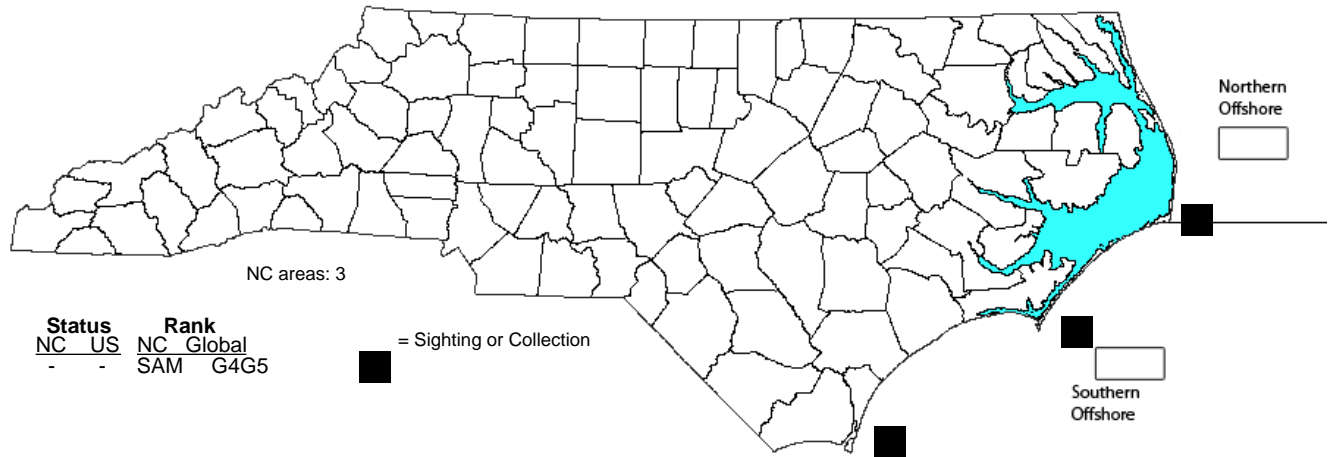
BEHAVIOR: The species is strictly nocturnal, and thus is seldom seen (except as roadkills).

COMMENTS: The relative scarcity of recent records has sparked the N.C. Natural Heritage Program to track the species as Significantly Rare, starting in 2012. One biologist remarked that ever since Coyotes have been seen in his local area in Buncombe County in the past 5-10 years, sightings of Spotted Skunks have markedly declined. Thus, one can surmise that the great increase of Coyotes across the mountain region has sparked this skunk decline, as skunks are preyed upon by these canines.

STATUS: Native

LIST TYPE: Official

Cystophora cristata Hooded Seal



DISTRIBUTION: In NC, sparingly in coastal waters. We are aware of five strandings in 2001 (all at one time?), and one in 2006.

Occurs in the far north Atlantic and the Arctic oceans, normally ranging south to about Nova Scotia. Strays occur farther south in winter, very rarely to NC.

ABUNDANCE: Rangewide, uncommon to fairly common, but not as numerous as some other northern Atlantic seals. In NC waters, apparently casual to very rare, with only a few known records of strandings.

SEASONAL OCCURRENCE: Presumed to occur only in winter or early spring, as NC lies beyond the normal extent of the winter range. However, one was a live stranding on the unusual date of September 15 (2006), far south at Wrightsville Beach (photo on the UNC-W stranding website).

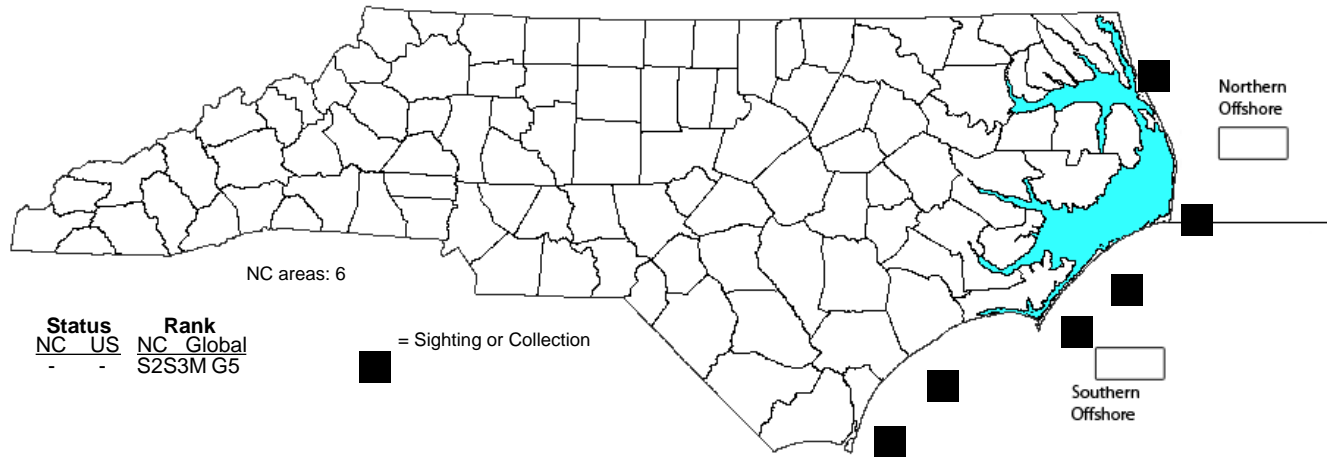
HABITAT: Normally, in cold waters, usually near ice.

COMMENTS: This is a highly migratory species, though moving from one area to the next in "arctic" waters, to stay near ice. Males can inflate air sacs on the top of their nose to form a large "hood".

STATUS: Native

LIST TYPE: Official

Phoca vitulina Harbor Seal



DISTRIBUTION: In NC, strictly along the coast and inshore ocean. This is the only "expected" seal to occur in NC waters.

Occurs along both the north Atlantic coast and the eastern Pacific coast, unlike most other seals (which are generally found only in the Atlantic or the Pacific, but not both). It ranges south in the Atlantic regularly at least to NY, and essentially annually to NC and SC.

ABUNDANCE: Quite common within its range. In NC, it seems to be increasing, despite global warming, and is being seen essentially each winter. It is rare to uncommon along the coast south to Oregon Inlet, and rather rare to Cape Hatteras; quite rare south of this cape. As many as 23-24 individuals were seen inside Oregon Inlet during the winter of 2011-2012; most were resting/basking on sandbars.

SEASONAL OCCURRENCE: A winter visitor to NC waters, with some straggling into spring.

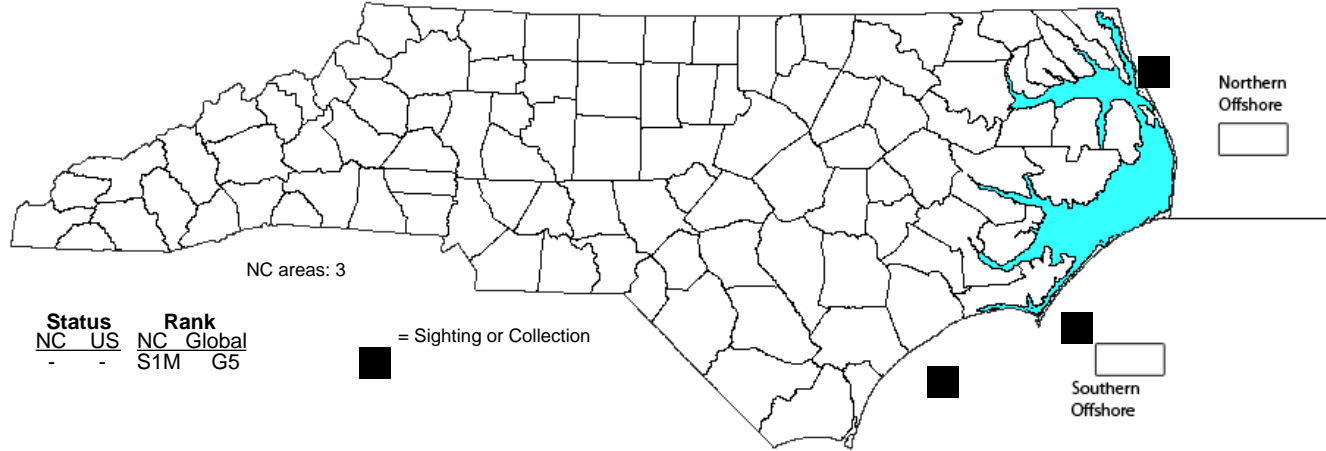
HABITAT: Cold to cool inshore waters, often near rocks in the main part of the range. In NC, not unusual to see on sandbars and other areas of sand, mainly at Oregon Inlet, but also on Cape Point at Cape Hatteras. At times seen foraging inside inlets.

COMMENTS: NOAA recorded 54 individuals of this species stranding on the NC coast from 2002-2009, far more than the other three species of seals combined have stranded. Thus, a seal seen in NC waters is assumed to be this species unless otherwise documented.

STATUS: Native

LIST TYPE: Official

Pagophilus groenlandicus Harp Seal



DISTRIBUTION: In NC, strictly in coastal waters, presumed to occur mainly from Cape Hatteras northward.

Occurs in the far northern Atlantic Ocean, and in the Arctic Ocean, normally ranging as far south as the Canadian Maritimes, but regularly straggling southward in winter to the mid-Atlantic states, including NC.

ABUNDANCE: Common to very common in its range; numerous enough to sustain heavy losses to people clubbing young for their white coats for the fur industry. In NC, a very rare to rare straggler in the cooler months, mainly to the northern half of the coastline. The NOAA website indicates 7 Harp Seal strandings along the NC coast, from 1996 (one) to 2006. Since 2006, there have been a report of four stranding in the winter of 2010-2011, plus another seen on March 9, 2009. Thus, there have been at least 10 records for the coast since 1996; we know of no state reports prior to 1996.

SEASONAL OCCURRENCE: Presumed to occur almost strictly in winter into early spring, as this and all other seals in the north Atlantic are at or near the southern end of their ranges in NC waters.

HABITAT: Cold waters.

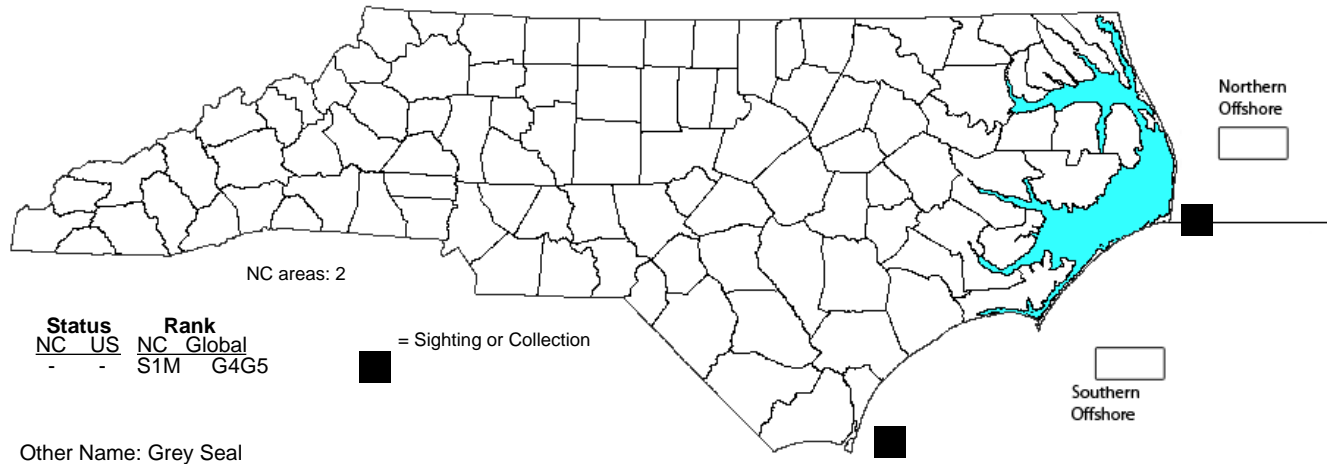
BEHAVIOR: The species is highly migratory, in large groups, but essentially within the far north Atlantic, in search of food; individuals in NC waters tend to be singles (presumably).

COMMENTS: This is the best known of the Atlantic seals, owing to the publicity of the controversial hunts of the pups for their all-white fur. However, in the mid-Atlantic states, the species is not nearly as familiar as is the Harbor Seal, the only regularly occurring one in this region.

STATUS: Native

LIST TYPE: Official

Halichoerus grypus Gray Seal



DISTRIBUTION: In NC, there are a handful of records of strandings along the coast, mostly north of Cape Hatteras.

The northern part of the North Atlantic Ocean, from the Canadian Maritimes north to Newfoundland, and moving southward in winter into cool waters off the northeastern states, sparingly as far south as NC.

ABUNDANCE: Increasing in its range, and generally fairly common to common. In NC waters, currently a very rare to rare winter visitor, in the colder months. Prior to about 1997, apparently not known from NC. First record was likely between 1997-2000, as NOAA reported one NC stranding within that time period. Since then, NOAA reports about 8 additional strandings in NC, through 2009. There is another report of a stranding on March 17, 2011 (at Kitty Hawk), and a very recent one in mid-May, 2013 at Carolina Beach.

SEASONAL OCCURRENCE: Primarily during the colder months -- winter into spring, as this represents individuals dispersing southward in the middle of winter.

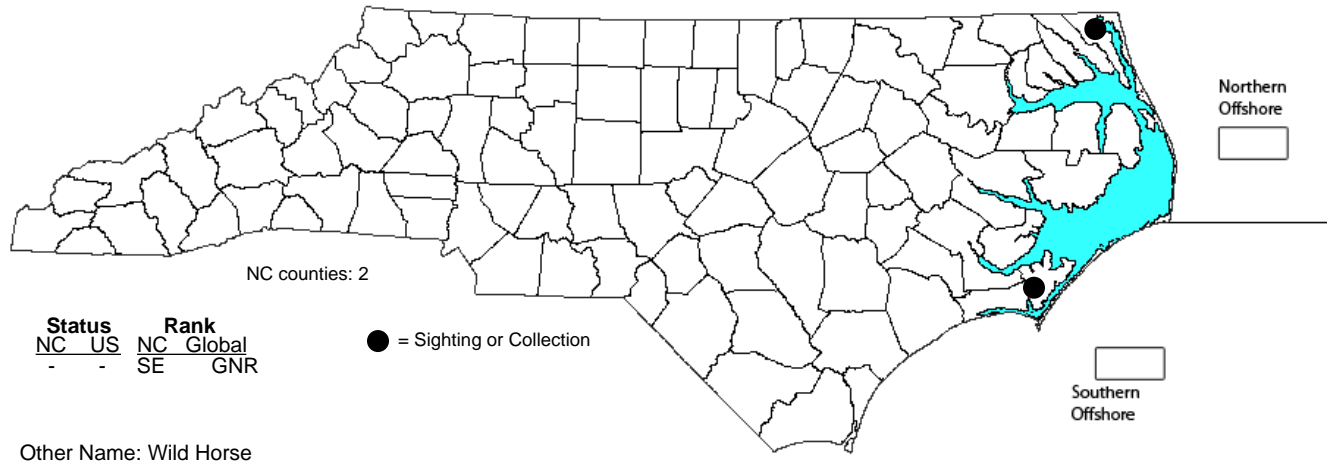
HABITAT: Cold waters, in the inshore ocean.

COMMENTS: We are unable to locate records of Gray Seal along the NC coast or in NC waters prior to the very late 1990s. As this species appears to be increasing within its range, it is no surprise that strandings were apparently unknown along our coast in nearly all of the 20th Century. This is the largest of the Atlantic seals, and it is often considered as a "pest" by fisherman because it competes for fish and damages fishing nets.

STATUS: Native

LIST TYPE: Official

Equus caballus Feral Horse



DISTRIBUTION: In NC, Feral Horses, which have been present along the coast for several hundred years, now are limited essentially to Currituck Banks (from Corolla north to the VA line) and to the Beaufort area -- Rachel Carson sanctuary, and parts of Cape Lookout National Seashore (Shackleford Banks).

Originally from North America, horses migrated to Asia across the Bering Land Bridge that connected North America to Siberia. About 10,000 years ago, horses became extirpated/extinct in North America, perhaps mainly due to hunting pressure. They were introduced back into North America by settlers in the late 15th Century, and on many other later occasions. Most "wild horses" now occur on public lands in the western United States.

ABUNDANCE: Numerically, quite rare, with populations of several dozen each in Currituck and Carteret counties.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Essentially only on coastal islands, where somewhat open -- dunes, grasslands, and marsh edges, sparingly into openings in maritime shrub or forests. They also range onto lawns, where present.

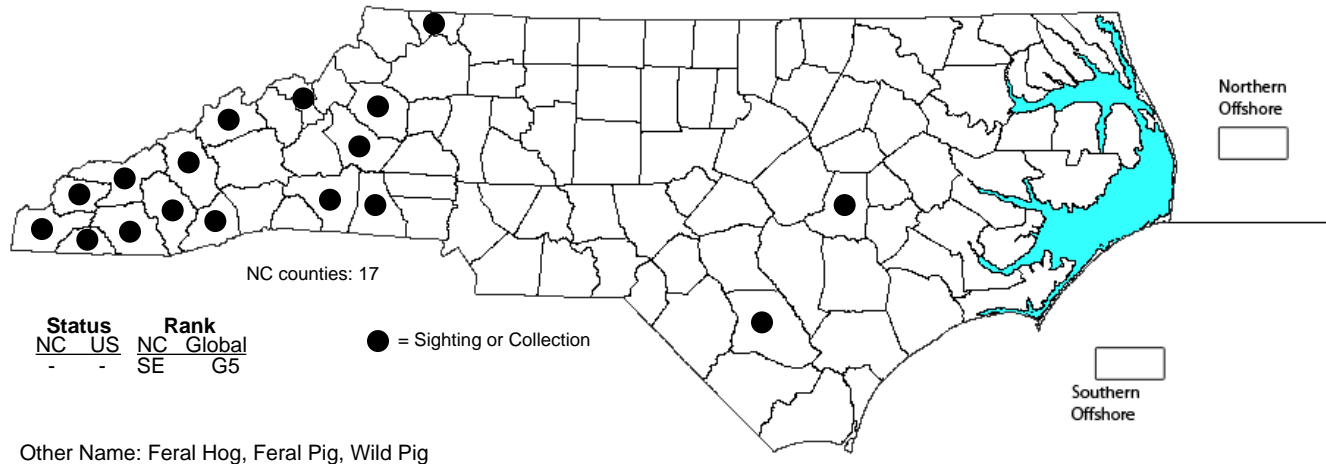
BEHAVIOR: Active during the day. They occur in small to moderate herds, up to a dozen or more individuals. They do considerable damage to native plants by their grazing in marshes and in grasslands.

COMMENTS: Though the public, in general, supports the continued existence of these feral animals along the coast, conservation/management agencies and officials have tried unsuccessfully to have the horses removed from various nature preserves, as they do some impact to native species. However, Federal and State laws require the continued maintenance of a minimal number of individuals.

STATUS: Introduced

LIST TYPE: Official

Sus scrofa Wild Boar



DISTRIBUTION: In NC, it was introduced to a handful of sites in the southern mountains, for hunting purposes, and some escaped from a private hunting preserve around 1920 in Graham County. Also widespread over much of the Coastal Plain, mostly in larger floodplains. Scarce over most of the Piedmont and the northern mountains.

An introduced species, found at scattered areas over the United States, mainly in the Coastal Plain from VA to TX, and in CA.

ABUNDANCE: Locally common to very common, and a major pest, along many Coastal Plain floodplains, less numerous in upland areas. Locally common also in the Great Smoky Mountains National Park and some other areas in the southwestern mountains. Uncommon, if not rare, over the remainder of the state.

SEASONAL OCCURRENCE: Active year-round.

HABITAT: Most numerous and widespread in rich, moist habitats, especially bottomlands, less so in swamps. Also numerous in the mountains in rich forested habitats, such as cove forests and northern hardwood forests. They often move downslope to lower elevation habitats in winter.

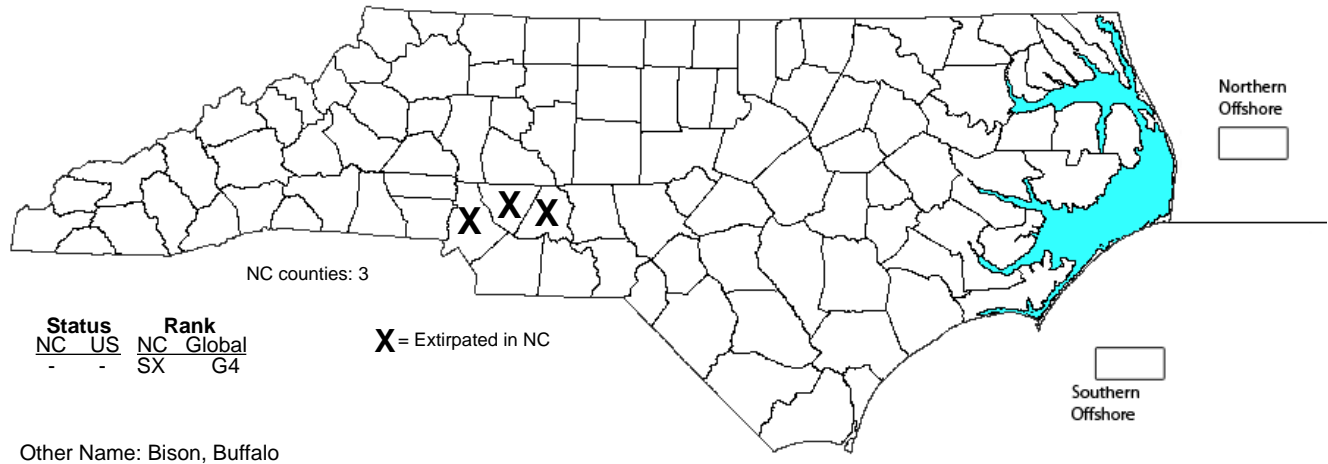
BEHAVIOR: The Wild Boar is most active at night, but they can often be seen during the day, especially in winter. They feed by rummaging in the soil, often turning up moist or rich soil areas, looking for roots and tubers, though they feed on a wide variety of plant and animal material. They often occur in small packs, up to 6 or more individuals; these are mainly females and young.

COMMENTS: As is true for most non-native species, the Wild Boar is a major pest, as it not only competes with native species for food, but it also tears up the native herb layer in many places, especially in natural areas, as it often favors such highly diverse sites. Thankfully, efforts are being made to trap and kill these animals, and it is a game animal. Populations in the state are descended from two types: 1) domestic hogs that have gone feral, and 2) wild pigs, typically referred to as European or Russian boar, imported to hunting preserves (Webster et al., 1985).

STATUS: Introduced

LIST TYPE: Official

Bison bison American Bison



DISTRIBUTION: In NC, bison formerly occurred in the western half of the state, at least to the central Piedmont, if not in the eastern Piedmont. It disappeared from the state by 1765 (Lee and Funderburg 1977).

Formerly occurred over most of North America, but now limited to the Great Plains northward into Canada.

ABUNDANCE: Extirpated in NC. Even within the overall range, it is absent in most areas, and limited mainly to protected parks and other reserves.

SEASONAL OCCURRENCE: Occurred year-round.

HABITAT: In NC, bison occurred in open woodlands, presumably in fairly level topography. Natural wildfires, plus grazing by bison and other large herbivores, likely kept forested areas more open than they are today. Thus, the species presumably occurred over much of the central and western Piedmont, especially in flatlands in the southern Piedmont (Cabarrus, Stanly, Mecklenburg, etc., counties).

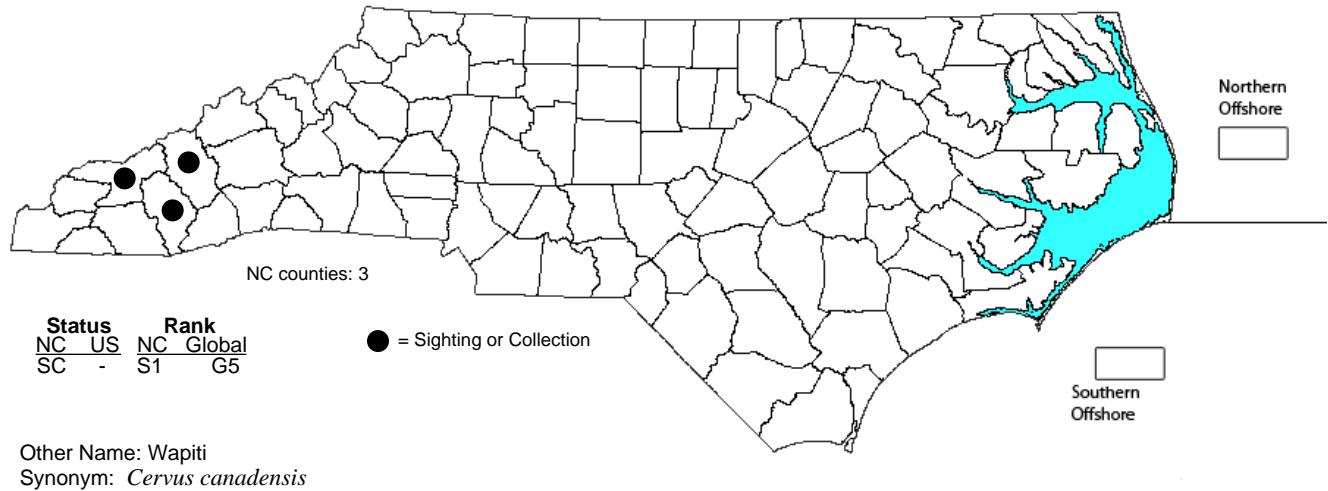
BEHAVIOR: In the Great Plains, bison graze in large herds, though the behavior in NC is probably not well known. Lee et al. (1982) state that the eastern bison "lived in small scattered herds and did not dominate its habitat as did the plains-dwelling form".

COMMENTS: Sometimes, one way to determine the historical range of a species is to look at geographical place names. Thus, the presence of Dutch Buffalo Creek, Irish Buffalo Creek, and other "Buffalo" creeks and place names is almost surely indicative of former inhabitation by the American Bison, called "Buffalo" by most people.

STATUS: Extirpated

LIST TYPE: Official

Cervus elaphus Elk



DISTRIBUTION: It formerly occurred in the NC mountains and probably the northwestern Piedmont -- based mostly on place names, such as Banner Elk, Elk Park, Elk River, etc. In 2001, the National Park Service started a re-introduction project in the southeastern portion of Great Smoky Mountains NP, mainly in and near the Cataloochee Valley. This population is highly monitored, and the NPS makes every effort possible to keep the elk within the national park boundary.

Formerly occurred over the majority of the United States and western Canada, east to most Atlantic states. The species became extirpated during the 1800's essentially east of the Rockies, mainly owing to hunting.

ABUNDANCE: The former abundance of the species in NC and the East is not known. The re-introduced population has fared rather well, and as of 2011 numbered about 140 individuals.

SEASONAL OCCURRENCE: Occurs year-round; not seasonal in occurrence or appearance in the park.

HABITAT: Historically, Elk may have occurred around the margins or near grassy balds and other natural openings, though sleeping and breeding presumably in forested cover. In the national park, individuals spend the day inside forests, resting during the day, and emerge to feed in fields and along other openings very late in the day and at night.

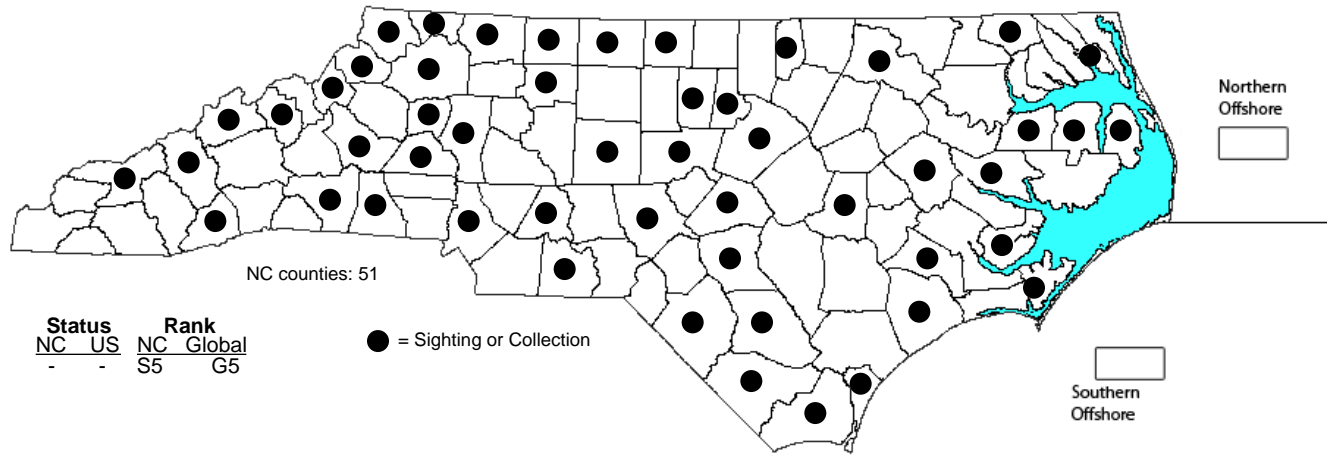
BEHAVIOR: Elk occur in herds for most of the year.

COMMENTS: Viewing of Elk in Great Smoky Mountains NP is a popular activity; many people drive the road through Cataloochee Valley, particularly late in the day, to watch for Elk coming out of the forests into the fields. Park visitors are not allowed to leave the roadsides to go into the fields or forests in this portion of the park.

STATUS: Native

LIST TYPE: Official

Odocoileus virginianus White-tailed Deer



DISTRIBUTION: In NC, it occurs across the entire state, in all counties, though it is likely absent on a few islands.

The White-tailed Deer occurs over nearly all of the United States and southern Canada, except for most of the far western states and the Southwest.

ABUNDANCE: Common to very common across the state, especially for such a large mammal. It is so numerous that it can sustain hundreds of thousands being harvested annually by hunters. In fact, it is often considered as a pest, at least in some areas.

SEASONAL OCCURRENCE: Occurs year-round, easily visible at any time of year.

HABITAT: Generally in forested areas for sleeping, breeding, and some foraging. However, it moves into fields, yards, and other open areas to forage at night. Deer favor bottomland hardwoods, but most any forest will suffice, at least with moderate to somewhat dense cover of shrubs and understory trees.

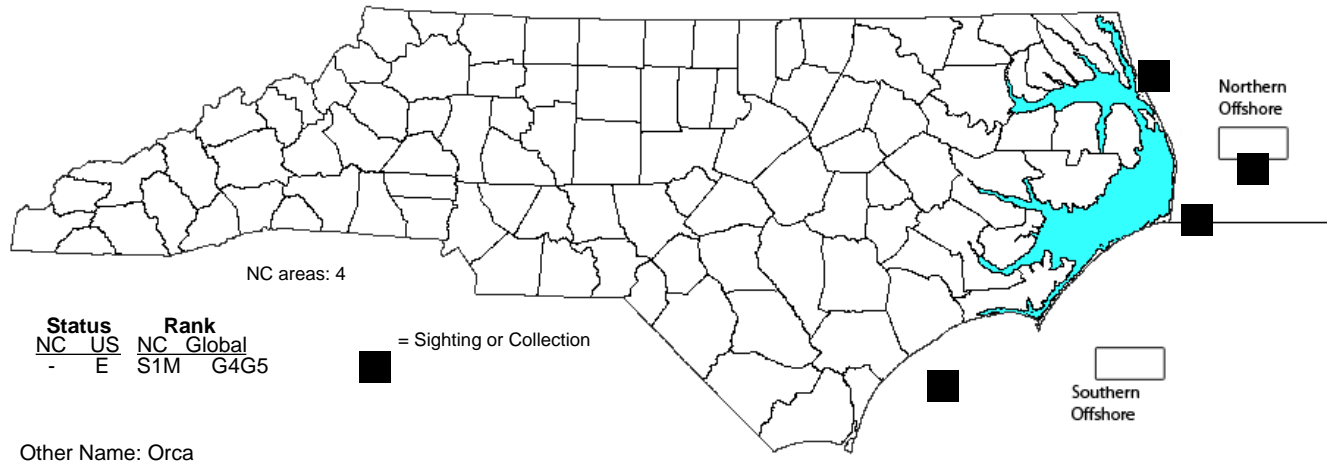
BEHAVIOR: Primarily crepuscular and nocturnal in their foraging and other activities, typically resting in cover during the day.

COMMENTS: White-tailed Deer need no introduction. Most people see them weekly or monthly, at least if they live or drive in the country, especially driving at night. Deer are notorious for over-browsing herbaceous and low woody vegetation in some parks and other protected areas, causing local extirpations of plants and certainly impacting small animals that feed on herbaceous vegetation or use such vegetation and shrubs for cover. Deer also are pests in yards and gardens, eating plants in yards.

STATUS: Native

LIST TYPE: Official

Orcinus orca Killer Whale



DISTRIBUTION: As it ranges over a wide range of waters, it can and does occur off the entire NC coast.

Worldwide in all oceans, from the Arctic ice pack to the tropics, to Antarctica. However, it is rare in the north Atlantic, especially so along the coast of the eastern US.

ABUNDANCE: Though locally common in some areas of the range, notably in the northeastern Pacific, it is rare in the north Atlantic. Likewise, this is a very rarely seen marine mammal in NC waters, seldom seen on boat trips, even well offshore. There was a recent observation (and video) of a pod of Killer Whales off Oregon Inlet in 2011.

SEASONAL OCCURRENCE: Presumably occurs year-round. The only stranding reported seems to be from March (Webster et al., 1995). The pod mentioned above was also seen in March.

HABITAT: Highly varied around the globe, but most numerous fairly close to shore, at least in the northeastern Pacific, and possibly also in the Atlantic. Thus, perhaps more likely to occur in NC waters over the Continental Shelf than beyond the Continental Slope. However, much more information is needed.

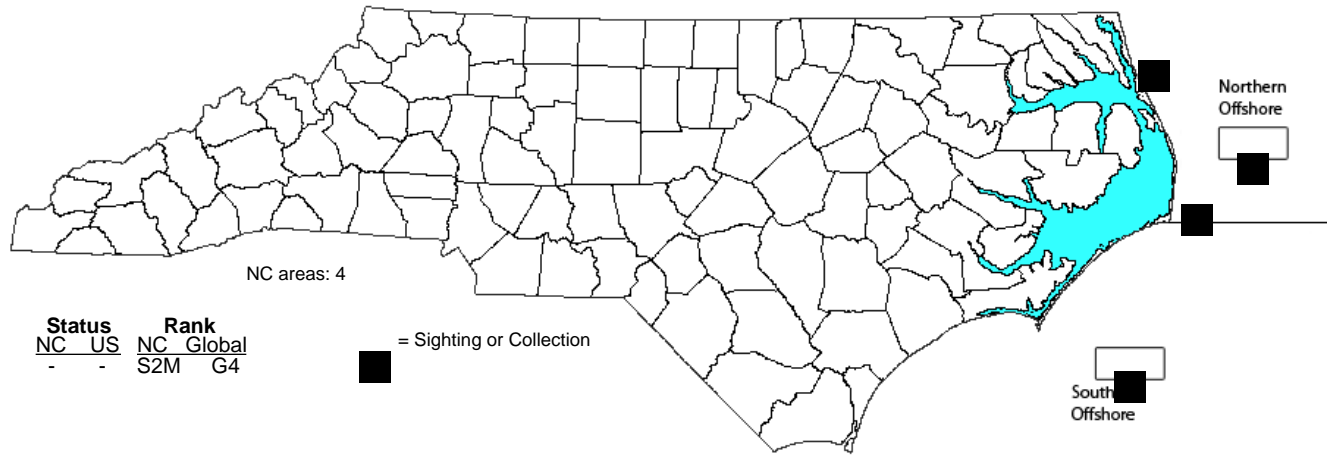
BEHAVIOR: This species occurs strictly in fairly small pods, which are family groups. They are quite animated, with much leaping out of the water, and with spectacular chases of prey, often other whale species. They are not afraid of boats, and they can be approached fairly closely, on those rare occasions off the NC coast when they are encountered.

COMMENTS: Spotting a Killer Whale in NC waters is quite a rare event. In fact, it is so scarce that it is poorly known here.

STATUS: Native

LIST TYPE: Official

Steno bredanensis Rough-toothed Dolphin



DISTRIBUTION: In NC, presumed to occur throughout the ocean from VA to SC.

Occurs in oceans around the world, but generally in tropical or subtropical waters, north to about VA or MD.

ABUNDANCE: Rather uncommon within its range overall, and also rare to uncommon off the NC coast. Though 15 stranded along the NC coast up to 1995 (Webster et al., 1995), 12 stranded in August, likely a single mass stranding.

SEASONAL OCCURRENCE: Probably year-round, as the stranding dates are scattered around the calendar.

HABITAT: This species favors deep waters, meaning mostly beyond the Continental Slope. It clearly favors warm waters, as the northern end of its range is roughly in VA or MD waters.

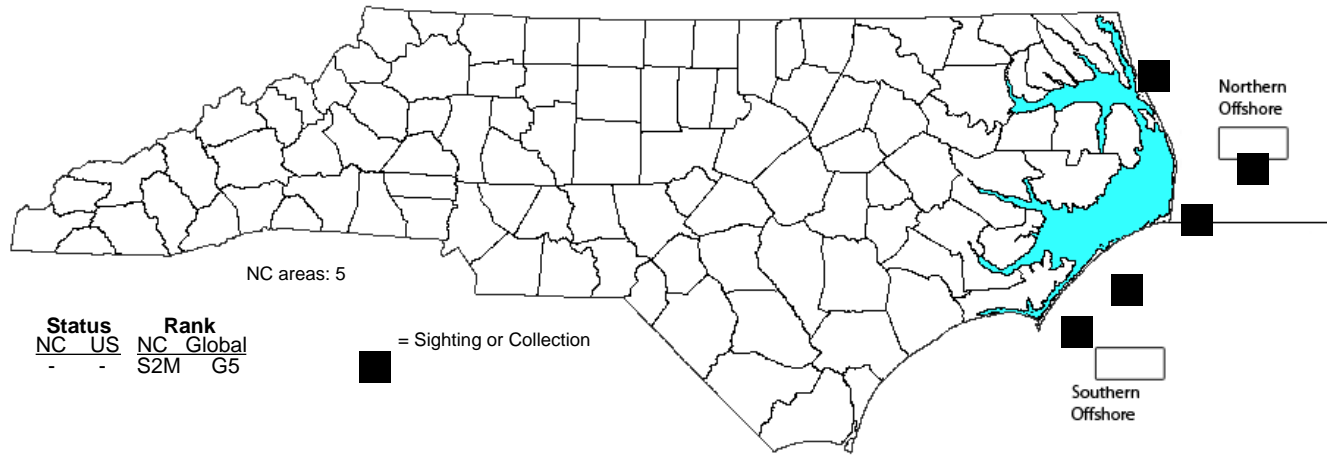
BEHAVIOR: Not overly agile in terms of leaps out of the water; normally seen skimming the surface. Occurs in small to moderate-sized groups, such as 10-20 individuals.

COMMENTS: The Rough-toothed Dolphin is monotypic, and no other dolphin has the conical head with no crease or obvious beak, rendering it somewhat easy to identify, if seen well. They also can be quite scarred, relatively unusual for a small dolphin. Much is still to be learned about this species, as offshore sightings are still rather infrequent over the range.

STATUS: Native

LIST TYPE: Official

Stenella coeruleoalba Striped Dolphin



DISTRIBUTION: Presumably occurs over the length of the NC offshore zone. Apparently it occurs mostly from Cape Hatteras northward, according to the NOAA website. Most sightings are far offshore, beyond the Continental Slope.

Occurs in all of the world's oceans, but favors warm waters. It occurs over the length of the Atlantic Ocean.

ABUNDANCE: A common species across its range. Though seldom seen offshore in NC waters, it has stranded often -- 20 strandings through 1995 in NC (Webster et al., 1995); best considered as rare to possibly uncommon (at least far offshore).

SEASONAL OCCURRENCE: Presumably occurs year-round, as it is not considered to be strongly migratory. Of the 20 strandings above, none were from July, August, or September, but it certainly is present in those months though perhaps farther offshore.

HABITAT: Generally in deep waters from the Continental Slope and farther to sea, mainly in warm waters.

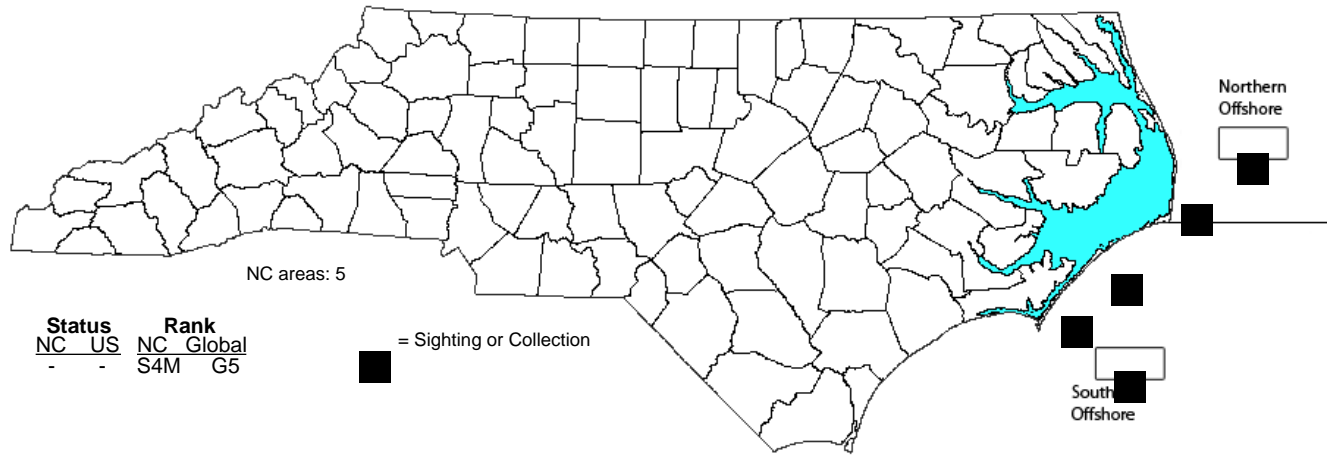
BEHAVIOR: This species also twists and rotates in the air when it jumps out of the water, but not as spectacularly as does the Spinner Dolphin. It occurs in often quite large groups, from 30 to several hundred.

COMMENTS: Sightings from pelagic trips are rare, considering that the species is supposedly quite common, and it has stranded often. Perhaps it indeed does occur mainly in the deeper waters far off the northern half of the state's coast, where fewer boats traverse.

STATUS: Native

LIST TYPE: Official

Stenella frontalis Atlantic Spotted Dolphin



Synonym: *Stenella plagiodon*

DISTRIBUTION: Present in the ocean all along the NC coast.

Most of the warmer waters of the world's oceans, north in the Atlantic to ME and Nova Scotia.

ABUNDANCE: A common to abundant dolphin in its range, and equally common to at times very common off the NC coast, mainly in warmer waters of the Gulf Stream, less so farther offshore. It is often more frequently seen than the Common Bottlenose Dolphin on boat trips, though the latter is clearly the most abundant cetacean in our waters.

SEASONAL OCCURRENCE: Year-round, as it is not seasonally migratory. As of 1995, there had been 25 strandings along the NC coast (Webster et al., 1995), covering most months of the year.

HABITAT: Unlike most of the state's dolphins, this species prefers the "shallower" inshore waters, mainly over the Continental Shelf. Its status beyond the Continental Slope is not well known, and perhaps the majority of the spotted dolphins at these depths are Pantropicals.

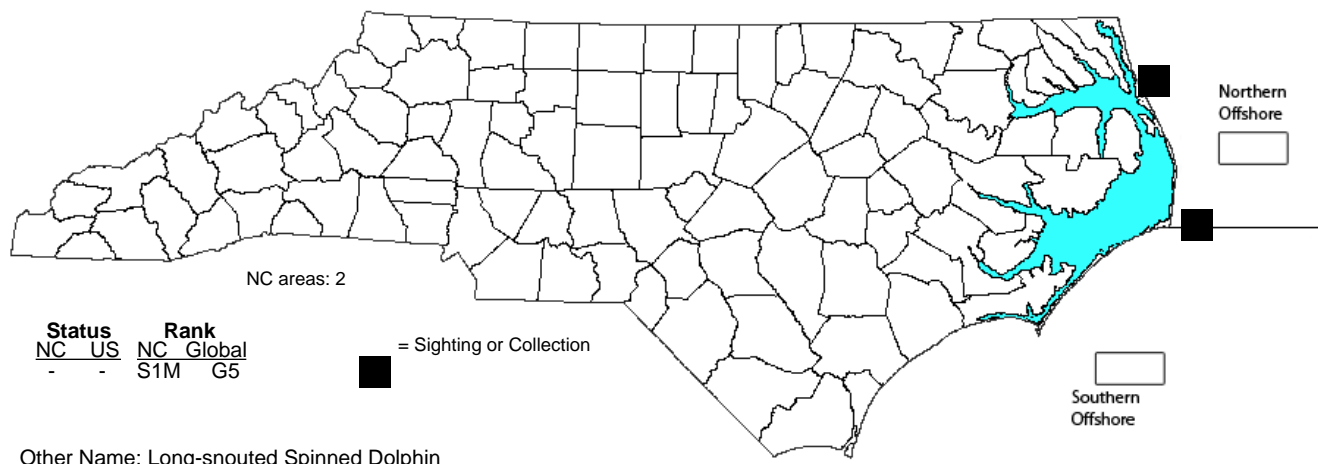
BEHAVIOR: This is a medium-build dolphin, but it is quite agile and frequently is seen leaving the water for its dives (more so than does the Bottlenose Dolphin). It also often comes to boats to bow-ride, where observers can see the spots and the pale blaze or wedge below the dorsal fin. It travels in smaller groups than most other dolphins, mainly 10-25 individuals.

COMMENTS: The two spotted dolphin species -- Pantropical and Atlantic -- are easily confused, as the amount of spotting is quite variable; some Atlantics can look spotless. On many pelagic trips to the Gulf Stream, observers can expect to see a few individuals of this species, and often a few dozen or more can be seen.

STATUS: Native

LIST TYPE: Official

Stenella longirostris Spinner Dolphin



DISTRIBUTION: In NC waters, presumed to occur from NC to SC, from the Gulf Stream and beyond.

This is another dolphin that occurs in oceans worldwide, in tropical to warm temperate waters.

ABUNDANCE: A common species within its overall range. In NC waters, it is very rarely noted, and is at best called rare. For example, Webster et al. (1995) noted that only two Spinner Dolphins had stranded along the NC coast; the NOAA website mentions two more that stranded on the NC coast in 2001.

SEASONAL OCCURRENCE: Apparently year-round; not considered to be strongly migratory. The two strandings through 1995 were in March and December, probably not indicative of any seasonal pattern.

HABITAT: Occurs in deep, warm waters, mainly beyond the Continental Slope.

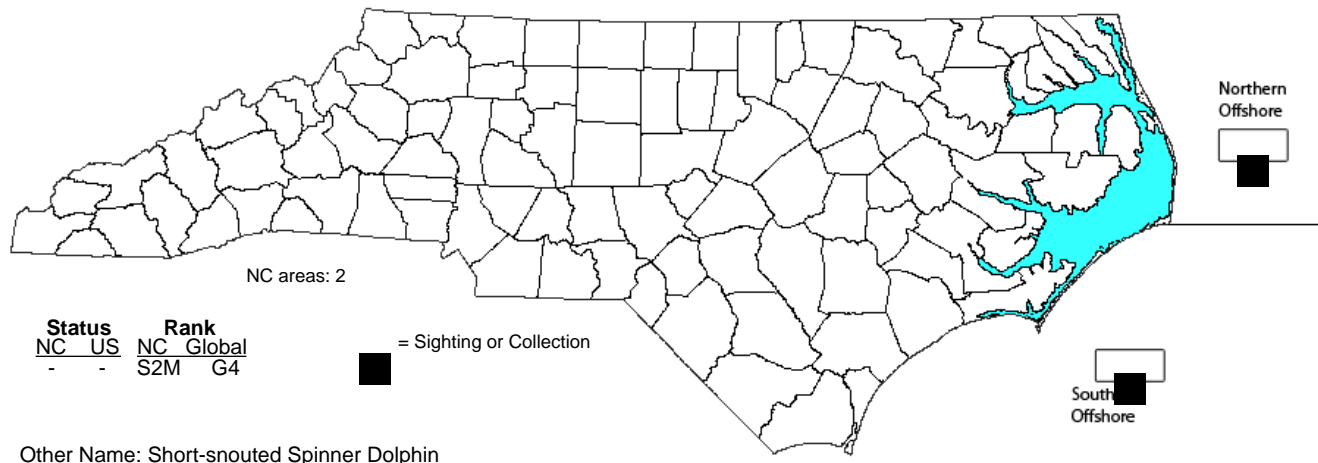
BEHAVIOR: This is a long and slender dolphin, and it is well known to perform remarkable spinning launches from the water, twisting on its long axis several times before hitting the water. They occur in large groups, often with other species.

COMMENTS: Despite this being a common and well-known species over much of its range, it is hardly ever seen on boat trips off NC, perhaps because it occurs in such deep waters. This deep-sea range might be a reason for the very few strandings.

STATUS: Native

LIST TYPE: Official

Stenella clymene Clymene Dolphin



DISTRIBUTION: In NC waters, distribution is not well known, but likely occurs from VA to SC, at least in the Gulf Stream and beyond.

Only in the Atlantic Ocean and the Gulf of Mexico, and in the Atlantic only in warmer waters, north to about NJ.

ABUNDANCE: Probably rare or poorly known; first reported only in the 1990's in the state. The NOAA website indicates four sightings off the NC coast in recent years, plus a stranding on the NC coast in August 2004. A group of 120 or more was seen off Cape Hatteras on a birding trip on 10 August 1998; photo on the Ocean Wanderers website. A group of 40 was seen off that cape on a boat trip on 25 May 2003; photo on the Seabirding website.

SEASONAL OCCURRENCE: Probably year-round, as the species is apparently not strongly migratory. However, most or all records seem to be during the "summer" months.

HABITAT: Occurs in warm waters, in the Gulf Stream or farther to sea; probably not found in the cool Labrador Current.

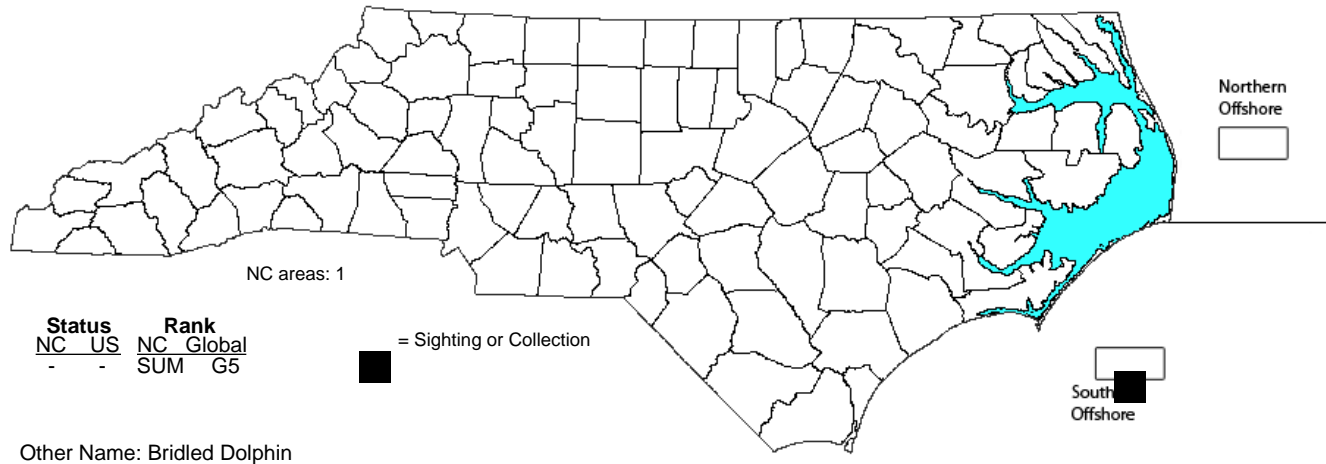
BEHAVIOR: This is a relatively short, chunky dolphin with a short snout. Despite that, it is very active and often jumps completely out of the water so that its dark saddle below the dorsal fin can be seen. It occurs in groups of 30-100 or more. One group in NC contained at least 120 individuals.

COMMENTS: This species might not really be rare off NC, because it occurs far offshore. Perhaps the species is increasing, as there are a good handful of records now, all in the past 20 years. Webster et al. (1995) reported no strandings of Clymene Dolphins in NC, through 1995.

STATUS: Native

LIST TYPE: Official

Stenella attenuata Pantropical Spotted Dolphin



DISTRIBUTION: Assuming that sightings from research vessels are correct, the species essentially occurs only far offshore "in" NC waters, beyond the Continental Slope; the few known records off NC are beyond 100 miles from the coast.

Occurs worldwide in tropical and subtropical waters, apparently north to at least MA.

ABUNDANCE: Considered to be common to abundant in its range, which is typically quite far offshore. In addition to the two reports above, the only other information that we could find relating to its occurrence in NC waters was on the NOAA website, which states: "From 1995-1996, 15 Pantropical spotted dolphins were stranded between North Carolina and Florida (NMFS unpublished data)". Despite such strandings, it is believed that healthy individuals remain far offshore (essentially beyond the Continental Slope), where its abundance there is unknown. Considered extremely rare within 100 miles of the NC coastline.

SEASONAL OCCURRENCE: Probably occurs year-round, as spotted dolphins are not strongly migratory.

HABITAT: This is a species of deep offshore waters, occurring farther from shore than does the Atlantic Spotted Dolphin, though presumably the ranges overlap. Like that species, Pantropicals favor warm waters.

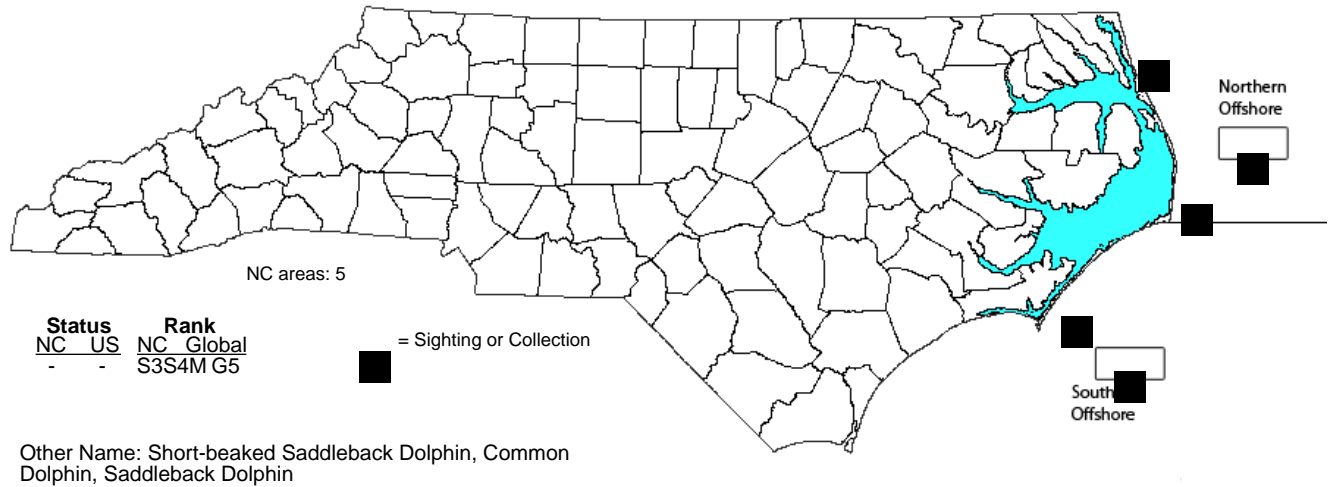
BEHAVIOR: This species occurs in very large groups, often 100 to 1,000 individuals. Like almost all *Stenella* dolphins, they are very active and often leap out of the water.

COMMENTS: This species was confused with Atlantic Spotted Dolphin for most of the 20th Century, and they are still easily confused, especially when young. The fact that most websites seem to lack specific data on the species is disconcerting. Webster et al. (1995) did not list any strandings for this species in NC as of 1994 or 1995, as opposed to 25 for Atlantic Spotted Dolphin. That suggests that Pantropical is either quite rare in NC waters, or at least is quite rare fairly close to shore. At any rate, much more information about its occurrence in NC waters is needed -- though we must assume that nearly all spotted dolphins within about 50-100 miles of the NC shore are Atlantic Spotted, and that nearly all seen more than 100 miles from shore are Pantropical Spotted (as depicted by locations of sightings off the Eastern coast of the US, in the NOAA publication).

STATUS: Native

LIST TYPE: Official

Delphinus delphis Short-beaked Common Dolphin



DISTRIBUTION: In NC waters, it presumably occurs from VA to SC, off the coast.

Though this species is found worldwide in temperate and tropical waters, in the Atlantic off the east coast of the US it seems to prefer the more temperate zone, and is seen more often from Cape Hatteras northward than it is off the southern half of the coast.

ABUNDANCE: Common within its overall range. However, in NC waters, fairly common to at times common, and that mainly north of Cape Hatteras. Much less numerous in the warmer months and in warmer waters.

SEASONAL OCCURRENCE: Presumed to occur year-round, as it is not a strong north-south migrant. However, more strandings occur in the winter months, either because it might move closer to shore in winter or because females with young are more prevalent at that time (and these are more likely to strand than others).

HABITAT: Seems to favor temperate (cooler) waters off NC, and not often seen in the warm Gulf Stream waters. Fairly deep waters are preferred; not normally seen close to shore.

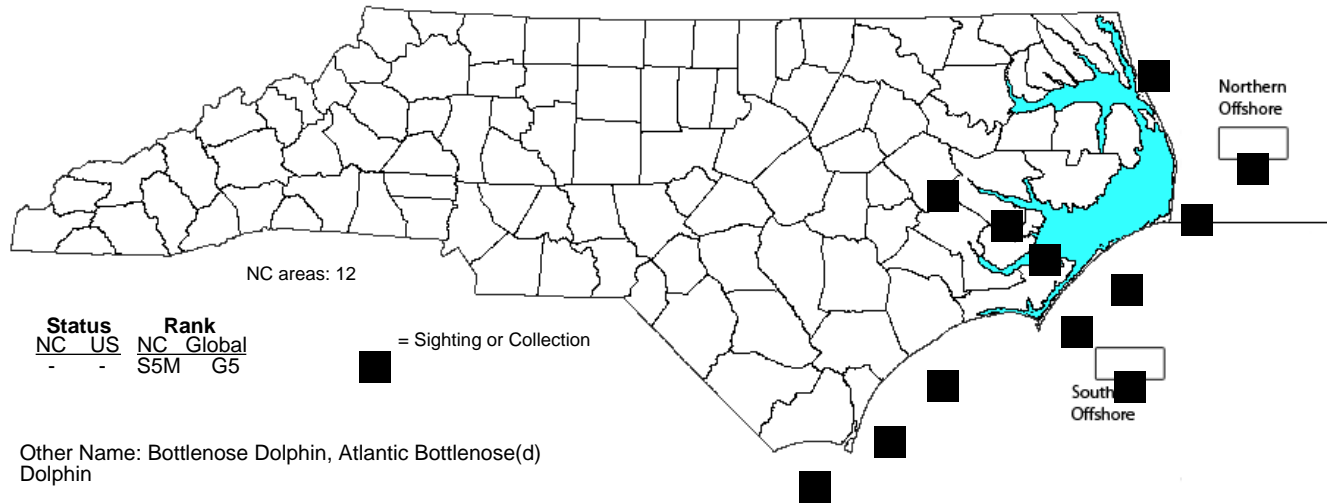
BEHAVIOR: This is a very active and lively species, often coming to boats to bow-ride, and individuals are often seen leaping completely out of the water, so that the hourglass pattern and amber-colored patch on the side of the animal can be seen. Groups of several dozen dolphins are normal.

COMMENTS: This is a very familiar dolphin in states north of NC, but in our waters it is seen much less often than Common Bottlenose Dolphins and Atlantic Spotted Dolphins. Winter boat trips seem more reliable for seeing them than those in the warmer months. At times, 100 or more can be seen on a single boat trip.

STATUS: Native

LIST TYPE: Official

Tursiops truncatus Common Bottlenose Dolphin



DISTRIBUTION: In NC, occurs in the Atlantic all along the coastline and far offshore; at times enters estuaries. By far the most widely distributed cetacean in NC waters, and the only dolphin species likely to be seen from shore. There are separate populations/forms found "inshore" and "offshore", with an apparent gap between them.

Found worldwide in temperate and tropical waters.

ABUNDANCE: Very common to abundant in our waters, both close to shore and well offshore. Clearly the most numerous cetacean in NC waters from the Continental Shelf to the coastline.

SEASONAL OCCURRENCE: Occurs year-round in our waters. There are numerous stranding records for all 12 months, with more in the winter perhaps owing to pregnant or nursing females or young with females at that time of year.

HABITAT: Occurs both inshore, easily seen from the coastline, and far offshore, with an apparent gap between them. Favors warm waters.

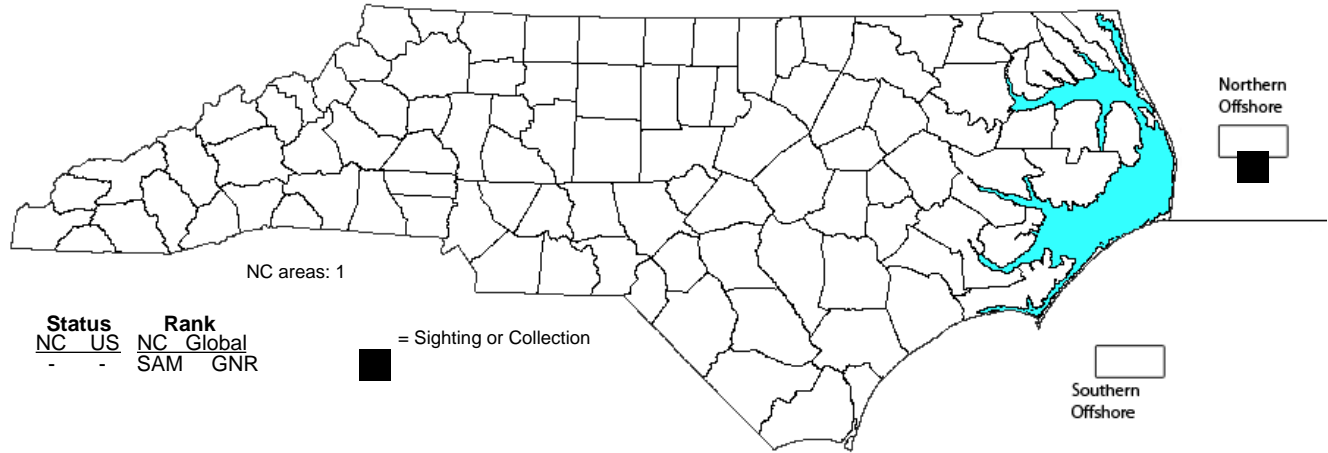
BEHAVIOR: Bottlenose Dolphins are quite active, though they are not quite as agile as some species, because they are somewhat stocky. Leaps completely out of the water are not as frequent as with many other dolphins. Groups are fairly small, typically only 10-25 individuals, instead of many dozens to hundreds like those in other genera.

COMMENTS: This is the most familiar oceanic species of mammal in North America, frequently seen by laypersons from shore. On offshore boat trips, numbers can be matched or exceeded by Atlantic Spotted Dolphins, but Bottlenose Dolphins are typically seen on most trips. A few biologists believe that the two populations or forms might represent separate species, but most probably do not share that belief.

STATUS: Native

LIST TYPE: Official

Lagenodelphis hosei Fraser's Dolphin



DISTRIBUTION: In NC, known from one record (at least), about 50 miles off Cape Hatteras, between the cape and the VA line.

A species of tropical and subtropical waters worldwide, but in North America found mainly in the Gulf of Mexico and around the West Indies. Very poorly known off southern Atlantic portion of the US coast, but might be regular far offshore.

ABUNDANCE: One of the less known dolphins off the US coast, and considered to be rare to uncommon in many areas, but locally common in others around the globe. However, as it occurs in very large groups and in deep offshore waters, total numbers might not be overly rare. In NC, assumed to be very rare, if not casual/accidental.

SEASONAL OCCURRENCE: The only record that we are aware of is a group of over 1,000 individuals, seen in mid-August 2005, by persons on a research vessel.

HABITAT: Deep waters far offshore; strictly in warm waters. Bowers et al. (2004) state that it usually occurs in waters over 3,000 feet (500 fathoms) deep.

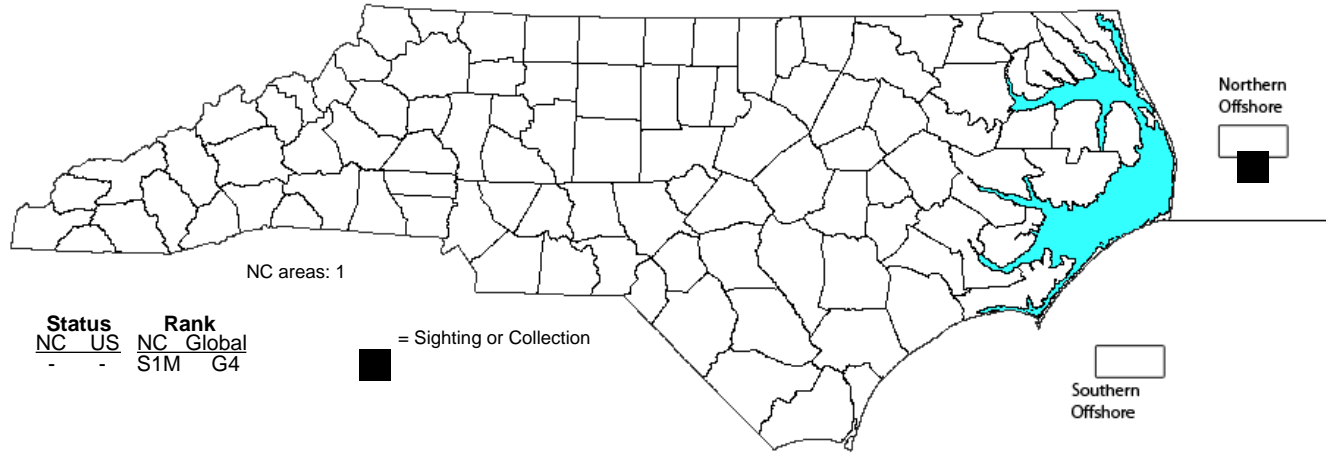
BEHAVIOR: Can occur in extremely large groups -- as many as 1,000 or more. It is a fast and active swimmer, supposedly wary of boats.

COMMENTS: Researchers on the RV Odyssey, moving northward well off NC, reported and photographed this species; one photo appears on the RV Odyssey website. The species was seen at the time with a large flock of Melon-headed Whales, another very rare and poorly known species off our coast. Thankfully, Fraser's Dolphin is fairly well-marked, as it has a moderately thick black band along the midline, from the face toward the tail, and it has a very short beak.

STATUS: Native

LIST TYPE: Official

Lagenorhynchus acutus Atlantic White-sided Dolphin



DISTRIBUTION: Most likely in NC in the Labrador Current inshore of the Gulf Stream, north of Cape Hatteras.

Fairly restricted for a cetacean -- only in the northern Atlantic Ocean, south regularly to about MD or VA, and sparingly at least to NC.

ABUNDANCE: Though common to abundant in much colder waters, it appears to be very rare to rare in NC waters, as the species lies at the far southern end of the species' range. It has been recorded from the state only fairly recently. Not known from the state as of 1982 (Lee et al., 1982). However, there were two strandings reported as of 1995 (Webster et al., 1995), both in April. The NOAA website reports a total of 10 strandings of the species along the NC coast from 2004 - 2008. Thus, records are increasing, though we do not have data on offshore sightings (i.e., whether live populations are increasing).

SEASONAL OCCURRENCE: Not well known in NC waters. Possibly occurs off NC all year, as it is not known to be strongly migratory, though Reid (2006) says that the species may move inshore in the summer and farther offshore in winter.

HABITAT: Cold to cool waters only, though offshore range in NC is apparently not known.

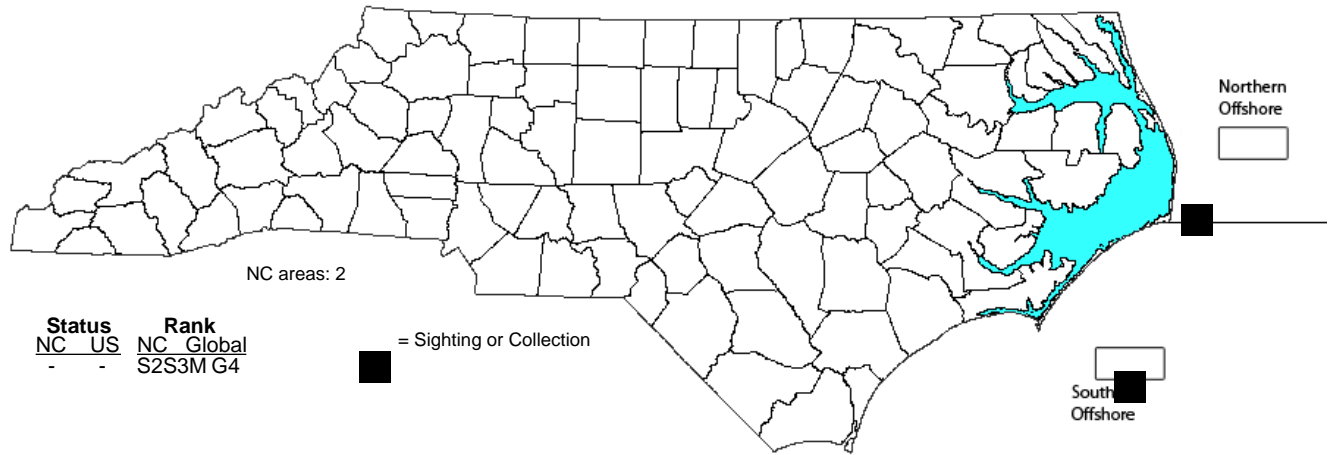
BEHAVIOR: The species is acrobatic and at times jumps out of the water, and thus the distinctive amber-yellow blaze on the side of the trunk, behind the dorsal fin, can often be seen. As with nearly all dolphins, the species often occurs in fairly large groups.

COMMENTS: The species is very poorly known in NC in offshore waters, likely because relative few vessels are looking for cetaceans in colder waters. Considering that 10 individuals stranded over a 5-year period recently (at least one each year), the species must not be overly rare here, at least near the VA border in the winter.

STATUS: Native

LIST TYPE: Official

Pseudorca crassidens False Killer Whale



DISTRIBUTION: In NC, almost certainly occurs throughout the oceanic range of the state, from VA to SC.

Found in oceans around the world, favoring warmer waters.

ABUNDANCE: In NC waters, generally rare to uncommon. It is surprising that NC had just a single stranding reported prior to 1995 (Webster et al., 1995), considering that it is seen on scattered boat trips into deeper waters.

SEASONAL OCCURRENCE: Presumed to occur in NC waters year-round, as it is not known to be strongly migratory.

HABITAT: Warmer waters, generally in deeper waters, and thus not seen on most boat trips.

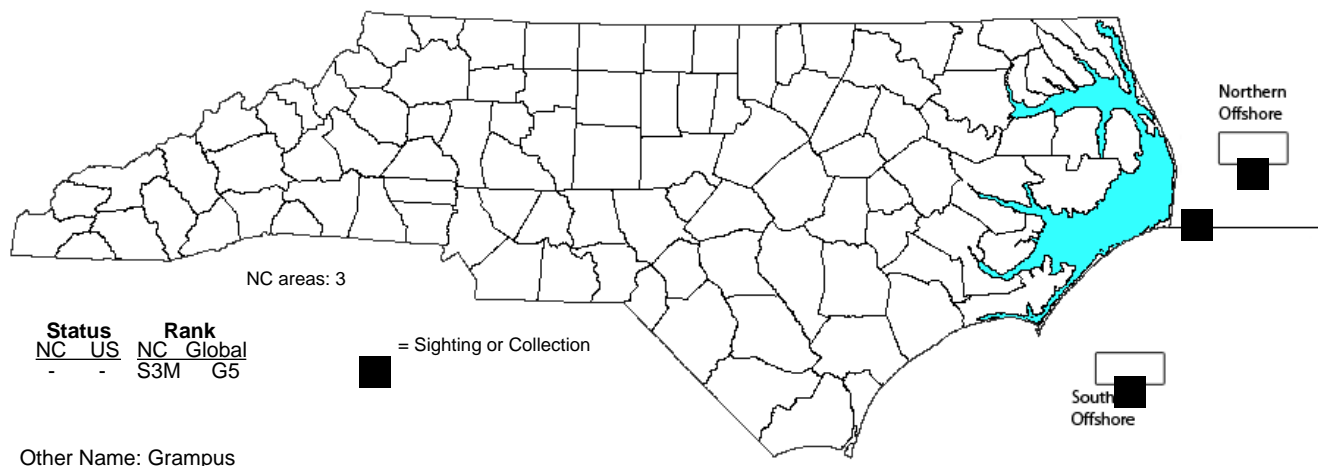
BEHAVIOR: Occurs in sizable groups, usually one or two dozen, but can be seen in groups over 100 individuals. Fairly active for a large dolphin (it is not a whale, despite the name), and at times can leap out of the water, though usually it stays close to the surface.

COMMENTS: Though it is monotypic, it is quite similar in appearance to several other dolphins. Both pilot whales are somewhat similar in being all black/blackish in color and have no beak. Pygmy Killer Whale and Melon-headed Whale are similar in shape but have white around and on the lips (not that easy to observe at sea). As a result, the species can be overlooked as pilot whales, or left unidentified because of similarity to other species, and thus be under-reported.

STATUS: Native

LIST TYPE: Official

Grampus griseus Risso's Dolphin



DISTRIBUTION: In NC, undoubtedly occurs from VA to SC well offshore.

Occurs worldwide, mainly in warmer and deeper waters, but all along the US coast.

ABUNDANCE: In NC waters, uncommon to occasionally fairly common. Not one of the more scarce species of dolphins in NC waters, and there are numerous records, with a handful of them being of 10 or more individuals seen.

SEASONAL OCCURRENCE: Occurs offshore at all seasons. The 21 strandings up to 1995 (Webster et al., 1995) are fairly evenly scattered around the calendar. It is apparently not strongly migratory.

HABITAT: Mainly from the Continental Shelf and farther to sea. Favors warmer waters rather than cool or cold waters.

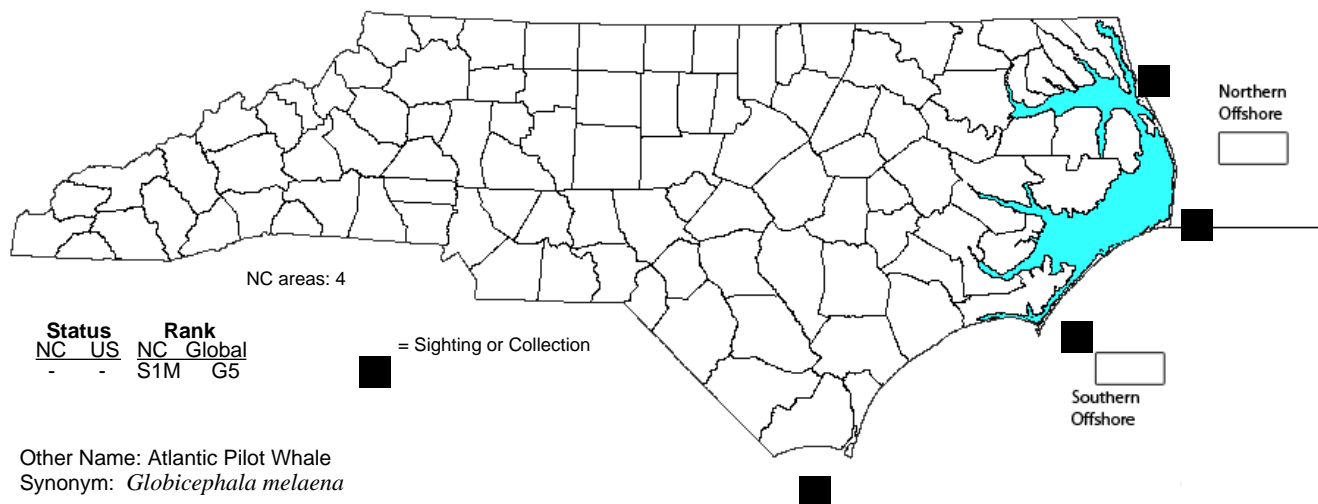
BEHAVIOR: Occurs in groups, usually of 25 or more. A fairly active dolphin, though seldom seen jumping completely out of the water like many or most of the *Stenella* dolphins.

COMMENTS: The species is monotypic and is quite different in appearance from other cetaceans in our waters. It has a high/tall dorsal fin (often shark-like), and older males are usually heavily scarred. Body coloration can be fairly pale, especially on the head.

STATUS: Native

LIST TYPE: Official

***Globicephala melas* Long-finned Pilot Whale**



DISTRIBUTION: Mainly found in NC waters north of Cape Hatteras, in the cooler Labrador Current waters, but certainly occurs farther out to sea where waters are more moderate.

Mainly in the north Atlantic Ocean, but a separate population occurs in the Southern Hemisphere. Not in the north Pacific. Ranges in the Atlantic south to NC and SC.

ABUNDANCE: Though common to abundant in the Atlantic, in NC waters seems to be poorly known and not nearly as well known as the Short-finned Pilot Whale, in part because of their similarity of appearance and in part because fewer boats/vessels are at sea during the cooler months or in the cooler waters. Very seldom reported at sea in NC, perhaps because of identification difficulties. Tentatively called "rare" in NC waters.

SEASONAL OCCURRENCE: Probably occurs off NC all year, but likely more frequent in winter or spring. Of the 10 strandings in NC up to 1995 (Webster et al., 1995), eight were in March-April, and singles were in July and November.

HABITAT: Cool to medium temperature waters, as opposed to the warm waters of the Gulf Stream. Not well documented is the distance from shore the species favors off NC.

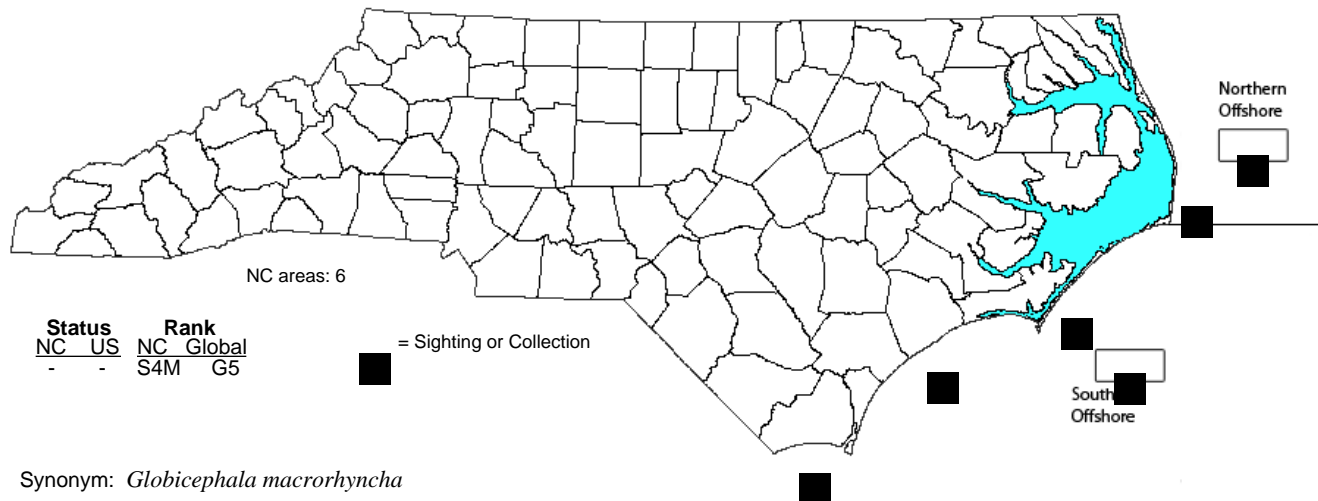
BEHAVIOR: Similar to that of the Short-finned Pilot Whale, this species occurs in pods of several dozen or more, swimming slowly at or near the surface, with little diving.

COMMENTS: Except for the longer flippers, the species is difficult to separate at sea from the Short-finned Pilot Whale. Like that species, despite its apparently large numbers, the IUCN considers it as a Data Deficient species.

STATUS: Native

LIST TYPE: Official

Globicephala macrorhynchus Short-finned Pilot Whale



DISTRIBUTION: Present throughout NC waters offshore, though mainly in warmer waters, and thus perhaps scarce in inshore waters north of Cape Hatteras (in the Labrador Current).

Subtropical and tropical oceans/waters around the globe. In the Atlantic, occurs mainly north to NJ.

ABUNDANCE: In NC waters, numerically common; however, as it occurs in often large groups, it can be missed on many boat trips. The species is one of the more numerous cetaceans off the NC coastline, exceeded in numbers by the Common Bottlenose Dolphin but perhaps as numerous or more so than Atlantic Spotted Dolphin.

SEASONAL OCCURRENCE: Webster et al. (1995) found a statistical difference in seasonal strandings of the species along the NC coast, with more in the cooler months; of the 18 stranded, all but three were between December and May. However, this seems odd, as the species is frequently seen offshore in the warmer months. Likely, the species is probably resident all year in our waters, as it is not known to be strongly migratory.

HABITAT: Warmer waters, generally in the Gulf Stream and farther out to sea.

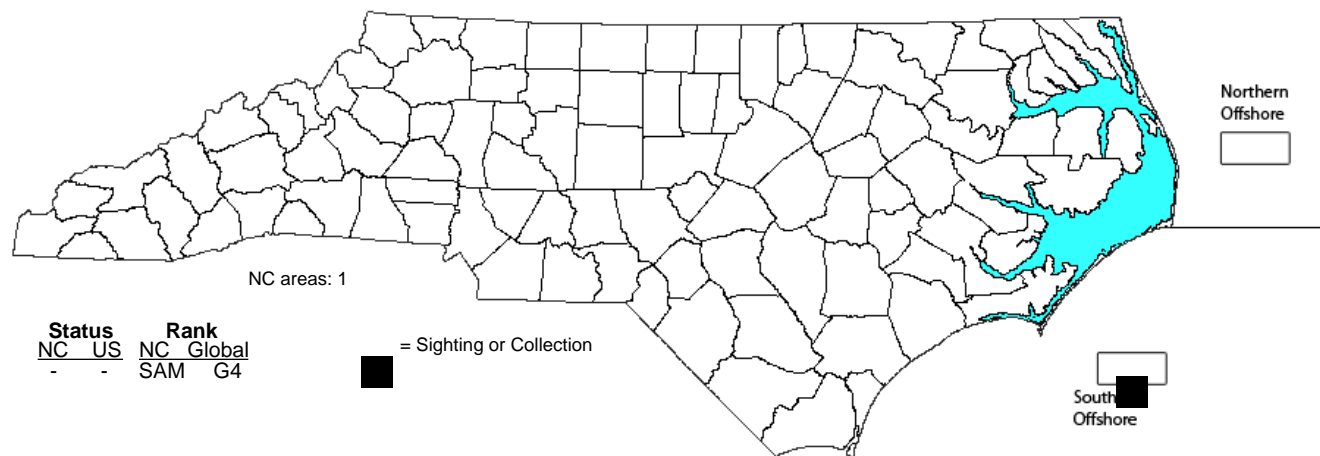
BEHAVIOR: Sluggish for a fairly small cetacean. It does not emerge far out of the water like some smaller species, but is seen mostly moving slowly, in pods of 20 or more, fairly horizontally at and near the water surface.

COMMENTS: The species is easily confused with the closely related Long-finned Pilot Whale, which favors cooler waters. Considering its relative abundance, the IUCN lists the Short-finned Pilot Whale as Data Deficient.

STATUS: Native

LIST TYPE: Official

Feresa attenuata Pygmy Killer Whale



DISTRIBUTION: We are aware of at least two reports/records for NC -- a report of a group of six individuals seen during a 1992 vessel survey, off Cape Hatteras, in waters over 1,500 meters deep (Hanson et al., 1994), and a stranding prior to 1995 (location not specified).

Tropical and subtropical (i.e., warm) waters around the world, but most common in the Southern Hemisphere. In the United States, mainly off the southeastern and Gulf coasts, north to SC.

ABUNDANCE: Thought to be rare across its range. Presumably very rare in NC waters, as the species ranges northward mainly to SC, and sparingly to NC.

SEASONAL OCCURRENCE: Unknown. However, there is a stranding in NC for October (Webster et al., 1995). Not known to be strongly migratory, and thus it might occur in NC waters for much or most of the year, though perhaps more likely in the warmer months.

HABITAT: Mainly in deeper waters (Continental Slope and farther at sea). Not well known off the US coast.

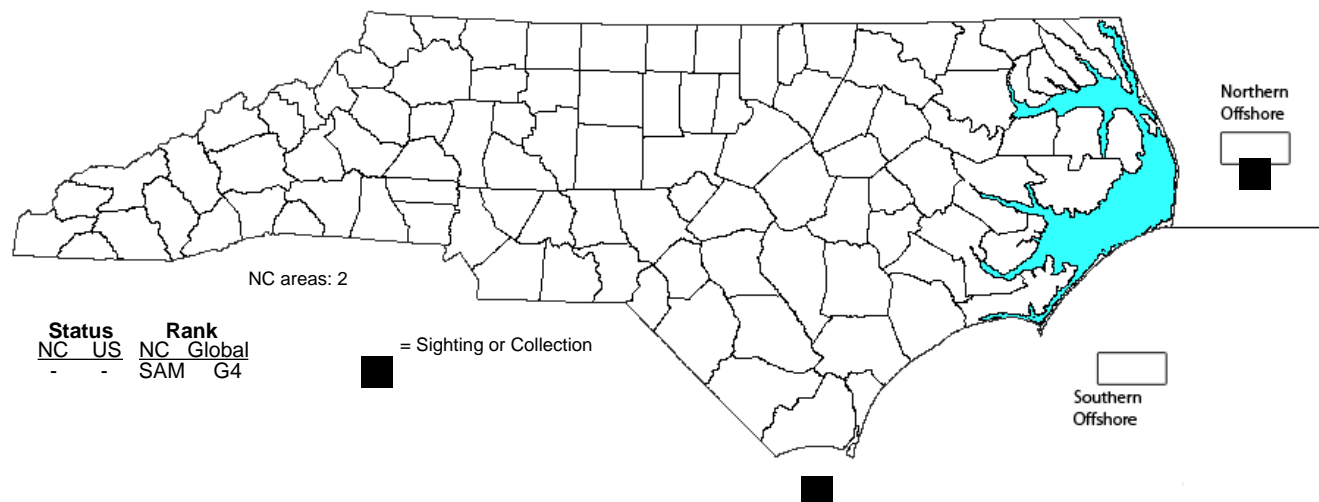
BEHAVIOR: The species can occur in small groups, reportedly an average of about 25 individuals in a group.

COMMENTS: Not surprisingly, the IUCN considers this to be a Data Deficient species. Not only does it seem to be relatively rare, but it can be easily confused with the Melon-headed Whale.

STATUS: Native

LIST TYPE: Official

Peponocephala electra Melon-headed Whale



DISTRIBUTION: The only known offshore report (to us) from NC is from fairly deep (2000 m = 333 fathom) waters, between Cape Hatteras and the VA state line (about 50 miles from the cape).

Tropical and subtropical waters worldwide. In the Atlantic, it ranges north regularly apparently only to FL, and sparingly to SC and NC, with at least one record from MD waters.

ABUNDANCE: Not well known, but believed to be uncommon across its range. In NC waters, presumably very rare, with only two records available. However, the offshore report was of "several hundred melon-headed whales" (PBS website, "The Voyage of the Odyssey", dated August 15, 2005).

SEASONAL OCCURRENCE: The two records known to us are: one stranded on July 23, 2006 at Bald Head Island (photo on the UNC-Wilmington stranding website), and from mid-August (a few days before 15 August) in 2005, as seen from the Odyssey, a research vessel; a photo of the head of one animal was presented on the website. As it is a warm-water species, and as NC lies at the northern edge of the range, sightings might be expected more often from June or July into September.

HABITAT: Warmer oceanic waters, apparently from the Continental Shelf and farther to sea.

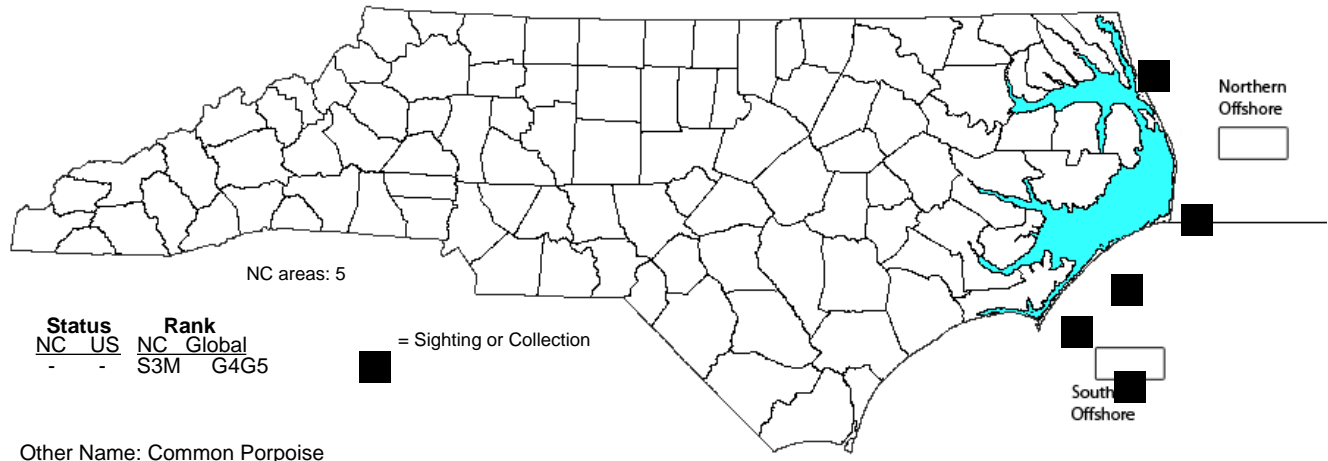
BEHAVIOR: The offshore report above, plus perusal of the literature, indicates that the species often travels in very large groups, of 100 or more, and frequently with Fraser's Dolphins (as was this particular group).

COMMENTS: Though the Melon-headed Whale is perhaps not overly well known, the IUCN has no conservation status for it, likely because it occurs in large pods and thus might not be overly uncommon in terms of total numbers. It would be no surprise if there are additional reports/records for the state, as there are numerous trips to the warm offshore waters made during the summer months. Making reporting of the species difficult is the close resemblance of it to the Pygmy Killer Whale, even though that species is in a different genus (Feresa).

STATUS: Native

LIST TYPE: Official

Phocoena phocoena Harbor Porpoise



DISTRIBUTION: In the state, essentially found only in the colder waters of the Labrador Current, south to Cape Hatteras.

Colder waters of the Atlantic, Pacific, and even the Arctic oceans. On the Atlantic, ranges south regularly only to NC.

ABUNDANCE: Fairly common as strandings, but quite rare as seen offshore from ships or boats -- with very few such sightings.

SEASONAL OCCURRENCE: There were 77 strandings along the NC coast through 1995 (Webster et al., 1995) -- all from January to May, with the highest number in March. This is a migratory species, ranging south to our state, only in winter and into spring, before heading back northward. Perhaps surprising is that there were no December strandings.

HABITAT: Cold waters inshore of the Gulf Stream. Although it perhaps might be regular offshore within a few miles of shore, it is presumably not seen from shore because of its very small size.

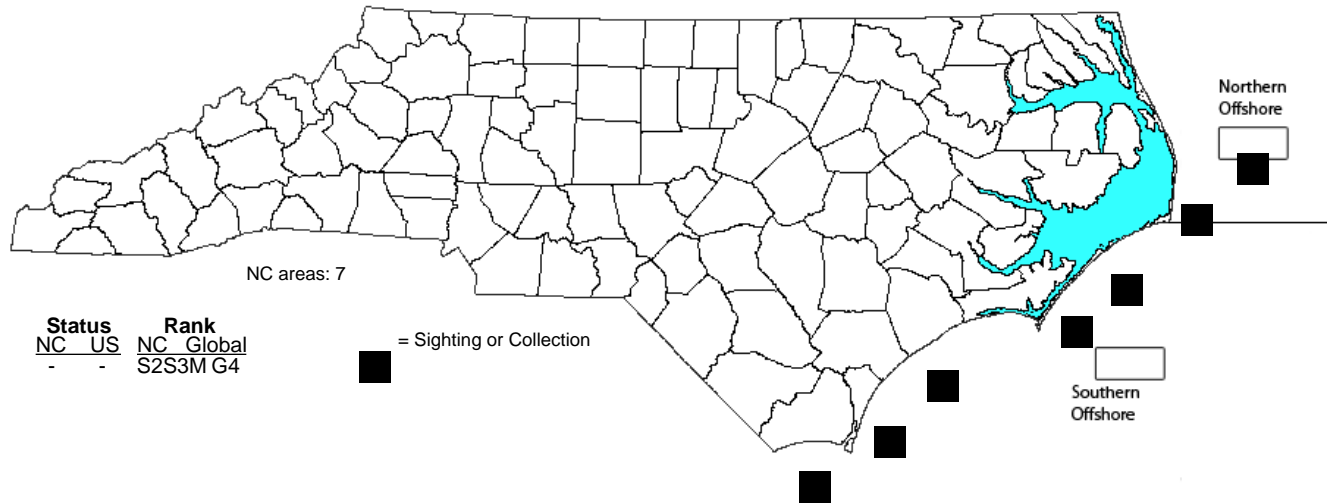
BEHAVIOR: The species is only about 5' long, and thus when it makes a "dive" or roll at the surface, often all one sees is the large, triangular dorsal fin and only a small part of the body.

COMMENTS: This was the second-most frequent stranding species in the Webster et al. (1995) compilation, far behind Common Bottlenose Dolphin. This suggests that the Harbor Porpoise is not uncommon in our waters in winter or early spring, though it is seldom seen because of its small size. Some porpoises are taken accidentally in fishing gill nets. Note that this species and the Dall's Porpoise of the Pacific Coast are the only true porpoises (family Phocoenidae) in North American waters; all other species called "porpoises" by the public are actually dolphins (in the family Delphinidae).

STATUS: Native

LIST TYPE: Official

Kogia breviceps Pygmy Sperm Whale



DISTRIBUTION: In NC, limited mainly to the Gulf Stream and waters farther offshore.

Warmer waters of the world, in the Atlantic mainly north to the northern states (off MA and ME).

ABUNDANCE: Rare to possibly uncommon; poorly known across its range and in NC. Abundance as compared with the very similar Dwarf Pygmy Whale is not clear, but both are very seldom reported on offshore trips.

SEASONAL OCCURRENCE: Strandings through 1995 (Webster et al., 1995) were rather frequent -- with 48 individuals found on beaches, in all months except for June. Thus, the species is a resident in NC waters and occurs throughout the year.

HABITAT: Warmer waters far offshore -- the Gulf Stream and beyond. Though there are numerous strandings, many or more represent females giving birth or with young.

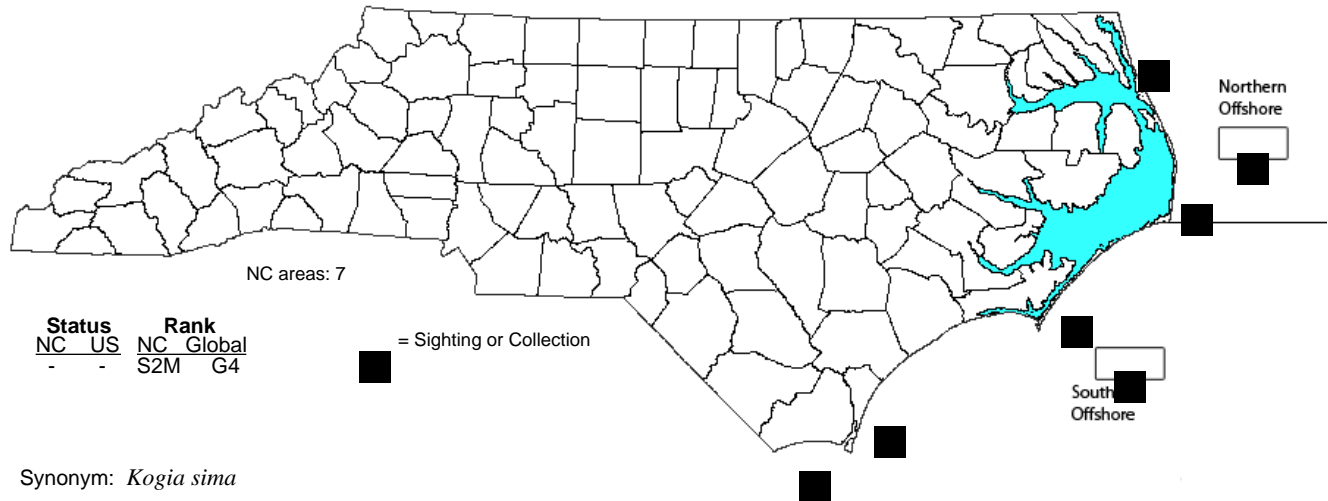
BEHAVIOR: As with the Dwarf Sperm Whale, it rests on the water surface with the back exposed, from the snout to the small dorsal fin, and thus can look like an overturned surfboard!

COMMENTS: This species is considered as Data Deficient by IUCN, as is the very similar Dwarf Pygmy Whale. The Pygmy is larger than the Dwarf and has a smaller dorsal fin.

STATUS: Native

LIST TYPE: Official

Kogia simus Dwarf Sperm Whale



DISTRIBUTION: Because it favors warm waters, the NC range is most likely from off Oregon Inlet south to the SC line, and thus likely is very scarce in the cool waters inshore of the Gulf Stream. Seen essentially in deeper waters, and not expected to be seen alive inshore of the Continental Slope.

Found worldwide, but limited mainly to warmer waters. In the Atlantic, found north mainly to the Gulf Stream, but sparingly toward the Canadian Maritimes.

ABUNDANCE: Rare to possibly uncommon, and poorly known, throughout its range. The NC status is about the same -- rare to possibly uncommon, and not well known -- in part because of its great similarity to the Pygmy Sperm Whale.

SEASONAL OCCURRENCE: Through 1995, there were 12 known strandings along the coast (Webster et al., 1995). Oddly enough, as it is considered a warm-water species, the records occur from September through April; there were no strandings in the four months from May through August! However, Webster et al. (1995) suggest that the strandings might be mostly of females giving birth, or of female/young strandings. Because it is a warm-water species, it is expected to be more frequently seen (alive) offshore in the warmer months, or at least not show any seasonal pattern.

HABITAT: Deeper waters of the Gulf Stream are preferred.

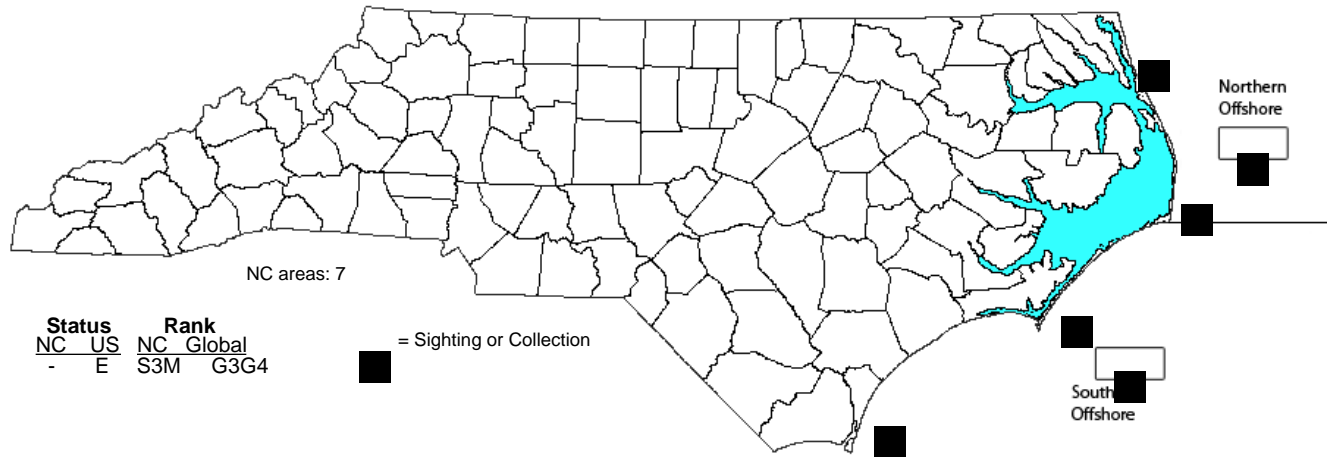
BEHAVIOR: Both species of *Kogia* whales, when resting at the water surface, show the top of the front half of the body, from snout to dorsal fin; thus, they look like overturned surfboards!

COMMENTS: The Dwarf Pygmy Whale was not described until 1966, and thus records and sightings for most of the 20th Century, probably even well after the description, were considered to be Pygmy Sperm Whales. The Dwarf has a slightly larger (taller) dorsal fin, but otherwise is quite similar to the larger Pygmy. Not surprisingly, the IUCN considers both species as Data Deficient.

STATUS: Native

LIST TYPE: Official

Physeter macrocephalus Sperm Whale



Synonym: *Physeter catodon*

DISTRIBUTION: Found off NC from VA to SC.

Found in oceans around the world, including the Atlantic from Arctic waters to the tropics.

ABUNDANCE: Uncommon -- fairly common for a large whale -- off the coast, usually well out of sight of land; very seldom seen from shore. Of the large whales in our waters, this is the most frequently seen one from boats/ships, particularly so in the warmer months.

SEASONAL OCCURRENCE: Through 1995, there were 16 strandings in NC (Webster et al., 1995), spanning the entire year, with only June, October, and December lacking records. Thus, occurs off the NC coast throughout the year, but often seen during the warmer months. Not obviously migratory like so many other large species.

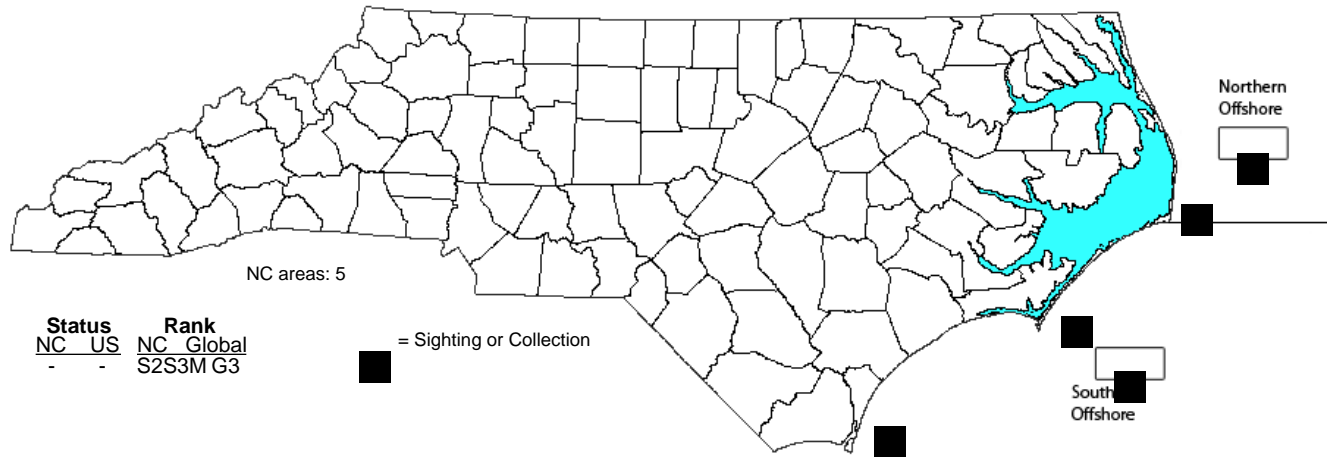
HABITAT: Mainly in deeper waters, from the Continental Slope to farther at sea.

COMMENTS: This is most common of the "great whales" around the world, despite being listed by the U.S. Fish and Wildlife Service as an Endangered species. Numbers have been estimated at around 1.5 million individuals. This species is normally easily identified by its huge blocky head and by the blow, which angles to the left.

STATUS: Native

LIST TYPE: Official

Mesoplodon europaeus Gervais' Beaked Whale



DISTRIBUTION: Presumed to occur off the entire NC coast.

Atlantic Ocean, northward only to about MA; thus, found essentially only in the warmer waters of the Atlantic.

ABUNDANCE: Rare, as seen on offshore trips. There are more strandings in NC of this species -- 19 as of 1995 (Webster et al., 1995) than of the other two *Mesoplodon* species. Pelagic observations gathered by Brian Patteson over roughly 20 years has indicated that this is the most frequently seen, or identified, *Mesoplodon* species in our waters, though -- more often than not -- the majority of individuals of this genus have to be left unidentified.

SEASONAL OCCURRENCE: The many strandings as of 1995 are for all months except for July, August, and December. Thus, it occurs in NC waters throughout the year.

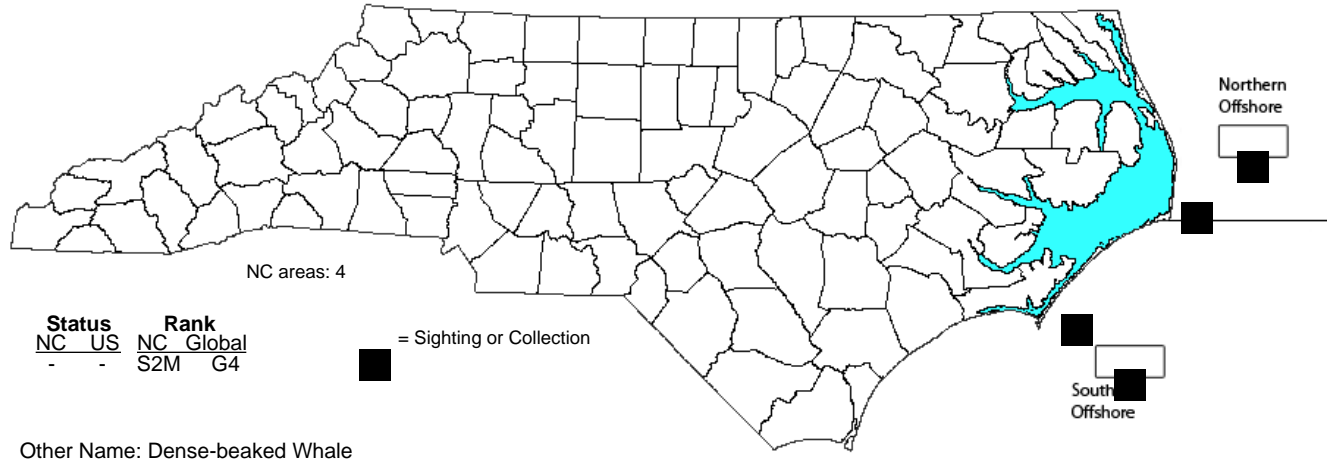
HABITAT: This beaked whale is possibly an inshore ocean species, considering its many strandings and relatively few offshore sightings. Habitat -- depths at which it typically occurs -- is thus uncertain.

COMMENTS: Gervais' Beaked Whales are infrequently identified at sea, in part because they lack overly distinctive field marks. Though *Mesoplodon* whales are not overly rare as a group in NC waters, getting good looks at them are difficult, as nearly all field marks are on the face/jaw, and not on the dorsal fin or dorsal half of the body. The IUCN considers it to be a Data Deficient species.

STATUS: Native

LIST TYPE: Official

Mesoplodon densirostris Blainville's Beaked Whale



DISTRIBUTION: Assumed to occur off the entire NC coast from VA to SC.

Occurs worldwide in oceanic waters. Occurs in the Atlantic from the Maritimes well south into the West Indies, and into the Gulf of Mexico.

ABUNDANCE: Apparently rare, and very seldom identified on trips offshore. As of 1995, there had been nine strandings in NC.

SEASONAL OCCURRENCE: The strandings (through 1995) are for January, February, March, June, and July -- suggesting that the species might well be present all year off our coast.

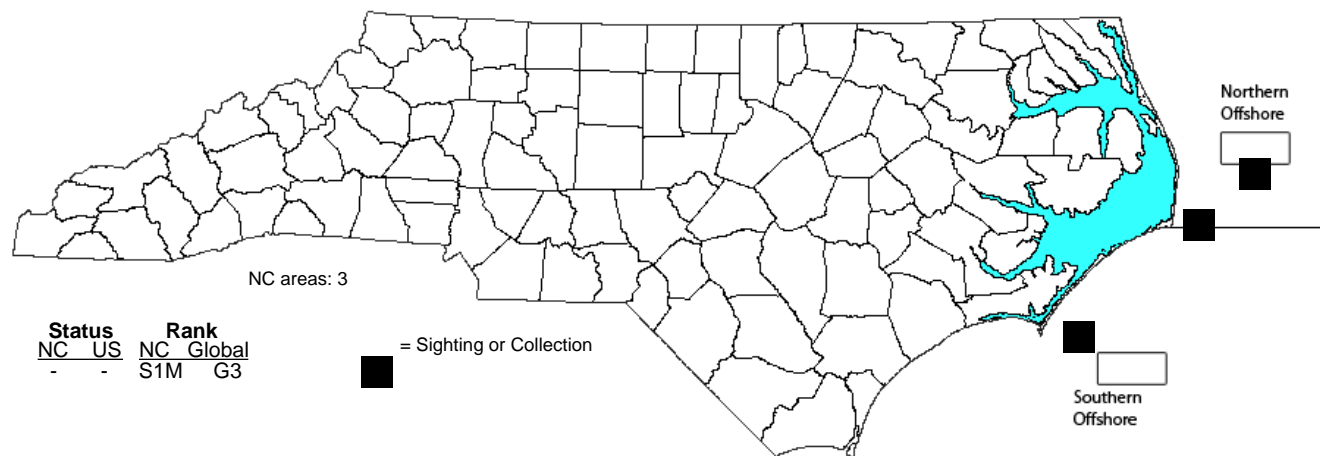
HABITAT: Generally well offshore, probably in deeper water such as beyond the Continental Shelf.

COMMENTS: The Blainville's can be identified by the highly arched jaw. Unfortunately, most of the Mesoplodons observed at sea do not give a good enough view for observers to be certain of identification; most are left as "Mesoplodon sp.". The IUCN considers the Blainville's Beaked Whale as Data Deficient, as it does for nearly all Mesoplodon species around the globe.

STATUS: Native

LIST TYPE: Official

Mesoplodon mirus True's Beaked Whale



DISTRIBUTION: In NC, presumably occurs in the ocean from VA to SC.

Primarily the Atlantic Ocean (not in the Pacific); ranges from Canada to the Bahamas.

ABUNDANCE: Very rare; the rarest of the three NC Mesoplodon species in terms of strandings, and perhaps the rarest also in absolute numbers. As of 1995, there were two strandings in NC, once each in March and July (Webster et al., 1995). Brian Patteson (pers. comm.) has never reliably identified this species on his 1,000+ trips offshore, and he believes that reported sightings of True's Beaked Whales represent misidentified Gervais' Beaked Whales.

SEASONAL OCCURRENCE: Not known, though apparently has been found most often from spring to fall.

HABITAT: Deeper waters of the ocean, likely beyond the Continental Shelf; almost certainly has not been seen (alive) within a few miles of shore.

COMMENTS: As with nearly all Mesoplodon whales, the IUCN considers the species as Data Deficient. True's Beaked Whale is very difficult to separate at sea from other Mesoplodon species, especially Gervais'. Most Mesoplodon individuals observed at sea have to be left as unidentified, as so little of the animals are typically exposed to the viewers on a boat or ship.

STATUS: Native

LIST TYPE: Official

Status
NC US
- -

Rank
NC Global
S3M G4

NC areas: 5

= Sighting or Collection

Northern Offshore

South Offshore

Other Name: Goose-beak Whale

Occurs in oceans worldwide.

SEASONAL OCCURRENCE: Apparently not noticeably seasonal in its occurrence off NC. As of 1995, there had been four strandings -- April (2), July, and December. Sightings seem to be relatively scattered in time.

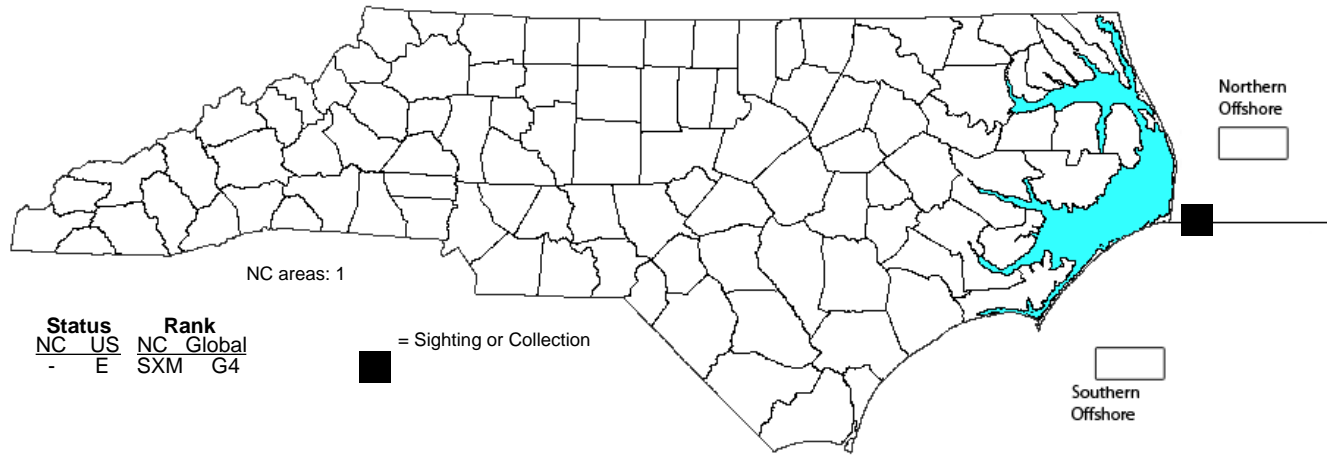
HABITAT: Deeper offshore ocean, apparently quite scarce over the Continental Shelf.

COMMENTS: Males can be quite pale on the head, and older males are rather whitish-headed, as well as frequently scarred. Unlike other "beaked whales", numbers of greater than 10 individuals can be seen in NC waters on some pelagic trips.

STATUS: Native

LIST TYPE: Official

Eschrichtius robustus Gray Whale



DISTRIBUTION: In NC, presumably occurred up and down the state, likely inshore and perhaps well offshore. Now extirpated in NC waters.

Presently found only in the Pacific Ocean, but formerly occurred in the Atlantic Ocean; it has been extirpated from the Atlantic since the 1700's.

ABUNDANCE: Extirpated from the state. In 1982, there were four skulls known from the state in several museums (Lee et al., 1982), and additional skulls have since been found. Former abundance off the NC coast is not known.

SEASONAL OCCURRENCE: Not known, but probably mostly in spring and fall, as it is a strongly migratory species along the eastern Pacific.

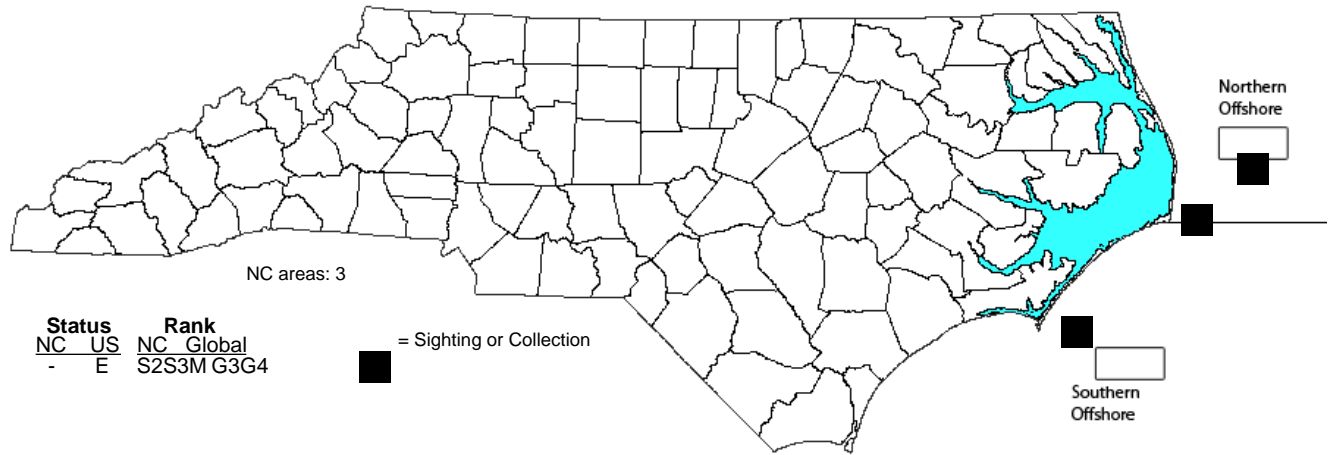
HABITAT: Oceanic, more likely inshore than in deeper waters, as the behavior of Pacific coast animals takes them along the coast, within a few miles of shore.

COMMENTS: The whaling industry was the cause of the complete extirpation of Gray Whales in the Atlantic. The species, which is the only species in its family (Eschrichtiidae), is listed as Endangered by the U.S. Fish and Wildlife Service.

STATUS: Extirpated

LIST TYPE: Official

Balaenoptera physalus Fin Whale



DISTRIBUTION: In NC, occurs offshore all along the coastline, generally away from sight of land.

Occurs worldwide in all oceans.

ABUNDANCE: Rare, but the most frequently seen *Balaenoptera* species in the state, and certainly is the best known of those four species. Occasionally seen from shore, but much less so than is the Humpback Whale.

SEASONAL OCCURRENCE: Most frequently seen in winter, sparingly from fall to late spring. There were 14 strandings known in the state as of 1995 (Webster et al., 1995); all but one were from January to May, and one in November. The highest number was in January, suggestive of the peak of occurrence in NC waters. As with other large whales, it moves north in spring and south in late fall, though it is clearly present in NC waters all winter.

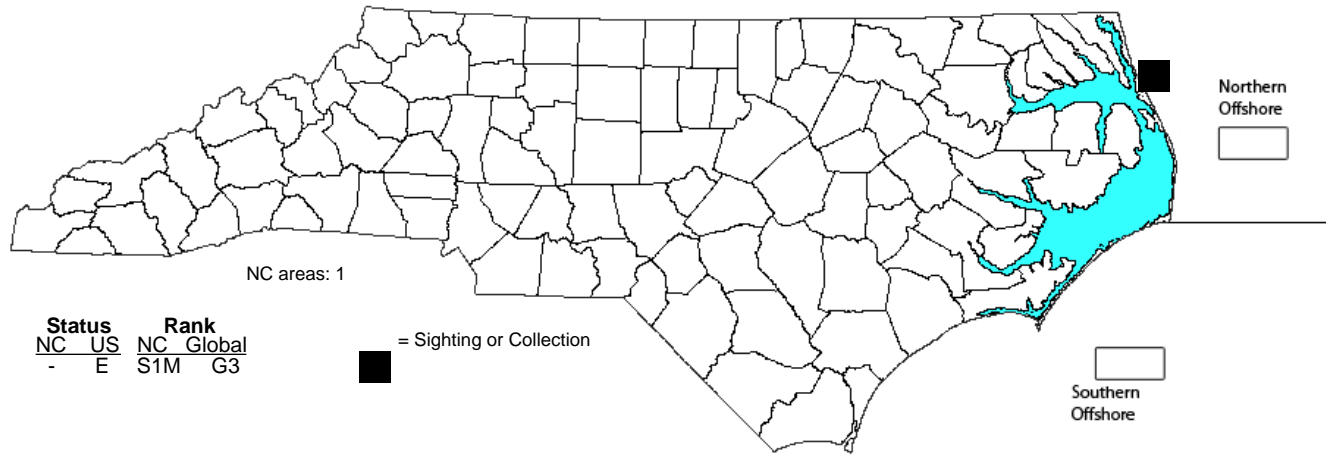
HABITAT: Offshore waters, though can be seen somewhat inshore, within a few miles of the coast.

COMMENTS: This is another large whale that is listed as Endangered by the U.S. Fish and Wildlife Service. Fortunately, it is not overly rare in the North Atlantic, though numbers are greatly reduced from a century or more ago as a result of the whaling industry.

STATUS: Native

LIST TYPE: Official

Balaenoptera borealis Sei Whale



DISTRIBUTION: In NC, occurs sparingly offshore, but is seldom seen.

Occurs in oceans worldwide, thus throughout the western Atlantic Ocean.

ABUNDANCE: Apparently very rare, with only a few records. There is at least one stranding record, in the month of April (Webster et al., 1995).

SEASONAL OCCURRENCE: Poorly known, as there are only a few state records. It migrates southward in the fall, and northward in spring; thus, it possibly is most likely to be seen in NC waters in spring and fall.

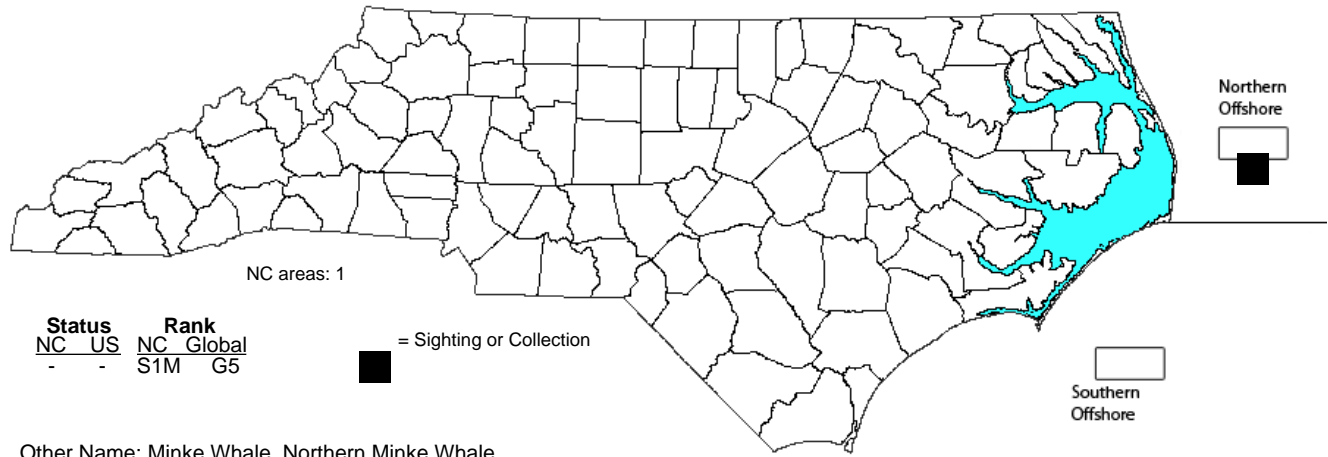
HABITAT: Deeper waters offshore; practically never seen from boats on single-day trips from the NC coast -- either because of their great rarity or because of the distance from shore (or both).

COMMENTS: This whale species can be difficult to identify from the Bryde's Whale, mainly as the latter species was described only several decades ago. Even so, both are very rarely seen in the central and southern Atlantic states. The common name is pronounced like "sigh". As with most *Balaenoptera* whales, it is listed as Endangered by the U.S. Fish and Wildlife Service.

STATUS: Native

LIST TYPE: Official

Balaenoptera acutorostrata Common Minke Whale



DISTRIBUTION: Distribution in NC not well known, but seen essentially only well offshore (away from sight of land).

Occurs in both the Atlantic and the Pacific oceans.

ABUNDANCE: Generally rare, well off the NC coast. Poorly known for much or most of the 20th Century in the Southeastern states, and the first record for the state was not until 4 April 1978 (sight records at sea). Since then, two strandings have been reported through 1995 (Webster et al., 1995), both in May. There are a few sightings off the coast since 1995, but it still remains a poorly known species in NC waters.

SEASONAL OCCURRENCE: Apparently mainly in the cooler months. Seasonal migrations seem to be poorly known, but NC might be somewhat near the southern part of the normal range of the species. Nonetheless, it moves north near the coast in spring and southward off the coast in fall, perhaps even wintering off the NC coast.

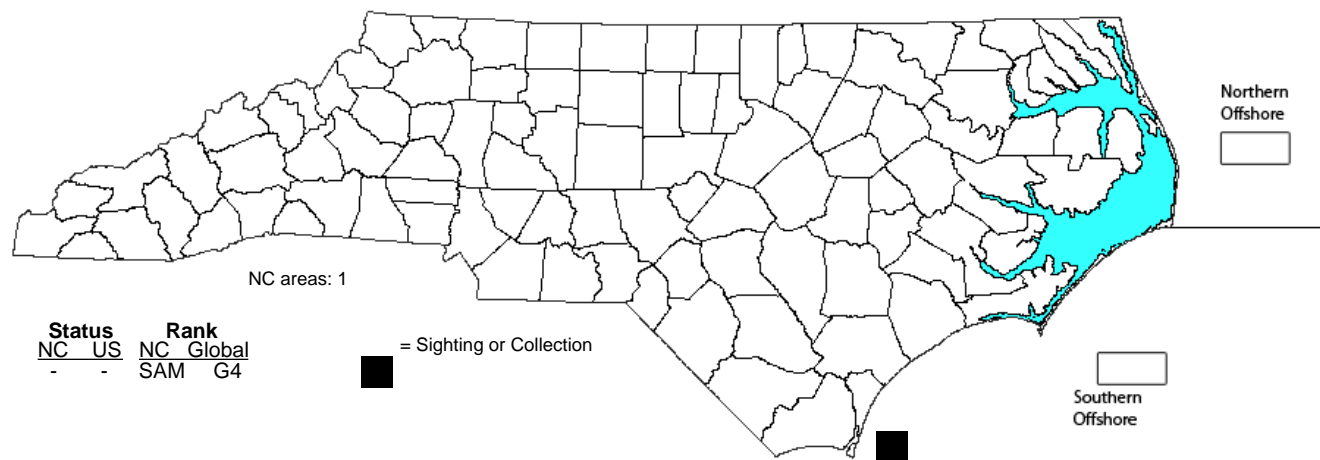
HABITAT: Generally in cooler water, but specifics are not well known.

COMMENTS: Unlike a number of other *Balaenoptera* whales, this "small" species is not on the U.S. Fish and Wildlife Service endangered species list.

STATUS: Native

LIST TYPE: Official

***Balaenoptera edeni* Bryde's Whale**



Synonym: *Balaenoptera brydei*

DISTRIBUTION: In NC, apparently noted only as a single specimen washed ashore at Carolina Beach, New Hanover County, on 13 March 2003. There appear to be no offshore reports/records.

Occurs in the warmer portions of the Atlantic and Pacific oceans. In the Atlantic, mainly north to SC, but sparingly to the Chesapeake Bay area of VA and MD.

ABUNDANCE: Though there is apparently just a single record for the state, it likely is best considered as very rare well offshore, rather than accidental or casual.

SEASONAL OCCURRENCE: Breeds in warmer waters in the winter season, then migrates or disperses northward. As NC lies near or at the northern edge of the range, most likely to be expected from spring to fall.

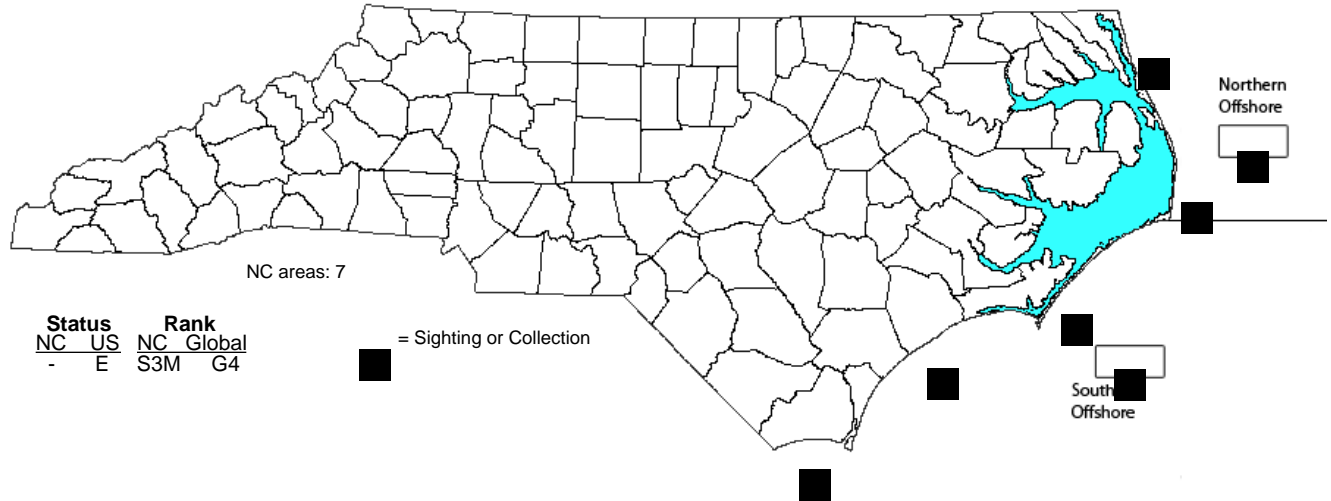
HABITAT: Offshore waters.

COMMENTS: This species was confused with the similar Sei Whale for decades and longer. Thus, it was no surprise that the specimen that washed ashore at Carolina Beach was originally identified as a Sei Whale. However, Bryde's Whale has three longitudinal ridges on the rostrum (in most individuals); Sei Whales have just a single midline ridge on the rostrum. The common name is pronounced like "BROOD-uhz"; the species is named after a Norwegian entrepreneur. Some references list the scientific name as *Balaenoptera brydei*, a different species from a very similar form in the Indian and western Pacific oceans, named as *B. edeni*. Most references lump these two, under the name *B. edeni*.

STATUS: Native

LIST TYPE: Official

Megaptera novaeangliae Humpback Whale



DISTRIBUTION: In NC waters, found both inshore and offshore from the VA line to the SC line.

Worldwide in all oceans.

ABUNDANCE: The most frequently seen large whale in NC waters from shore. Generally uncommonly seen from Cape Hatteras northward, and rather rarely seen south of this cape, perhaps because of a north-south migration that carries it farther offshore south of the cape. Often seen from shore from the VA line to Cape Hatteras. However, it is quite rarely seen more than a few miles offshore.

SEASONAL OCCURRENCE: Primarily from late fall to spring. There were nine strandings reported up to 1995 (Webster et al., 1995), with all being from December through April (covering all five months). The species breeds in warmer waters in the subtropics during the winter and migrates north to Arctic waters, where it spends the summer.

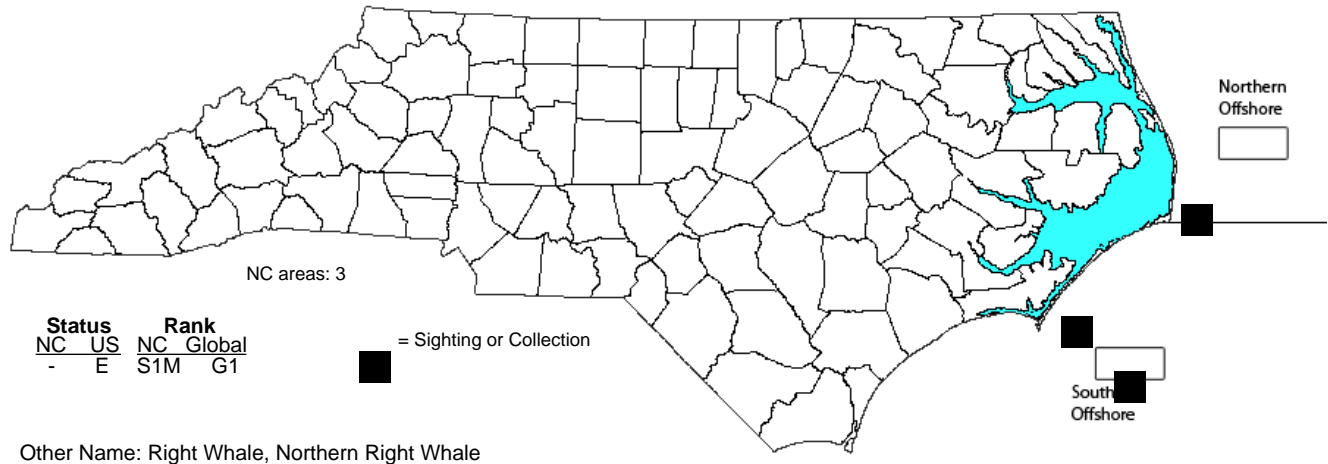
HABITAT: Oceanic, both inshore (within a mile or two of shore) and well offshore. By far, the most frequently seen whale from shore in NC.

COMMENTS: This is another whale that is listed as Endangered by the U.S. Fish and Wildlife Service. This seems surprising, considering its relative abundance compared with most other large whales (except Sperm). However, as with nearly all large whales, considerable numbers were harvested in earlier centuries, though the population in the North Atlantic is rebounding, at least slowly.

STATUS: Native

LIST TYPE: Official

Eubalaena glacialis North Atlantic Right Whale



DISTRIBUTION: Occurs off the entire length of the NC coastline, as it is essentially migratory past our state.

Restricted to the northern portions of the Atlantic Ocean, from the Bahamas and FL northward to Newfoundland and Labrador.

ABUNDANCE: Globally endangered; listed by the U.S. Fish and Wildlife Service as an Endangered Species. In strong decline, with perhaps only 300 individuals in its entire range, as of 2013. Along and off NC, it is very rare and declining in observation; only a few records in the past 10-20 years.

SEASONAL OCCURRENCE: Primarily in late fall and early spring, off NC. It breeds in the warmer waters off GA and FL in the winter, and moves northward to summer off the Maritime Provinces, for the most part. It then migrates southward in late fall. Interestingly, the four strandings along the NC coast, as of 1995 (Webster et al., 1995) were from February to April.

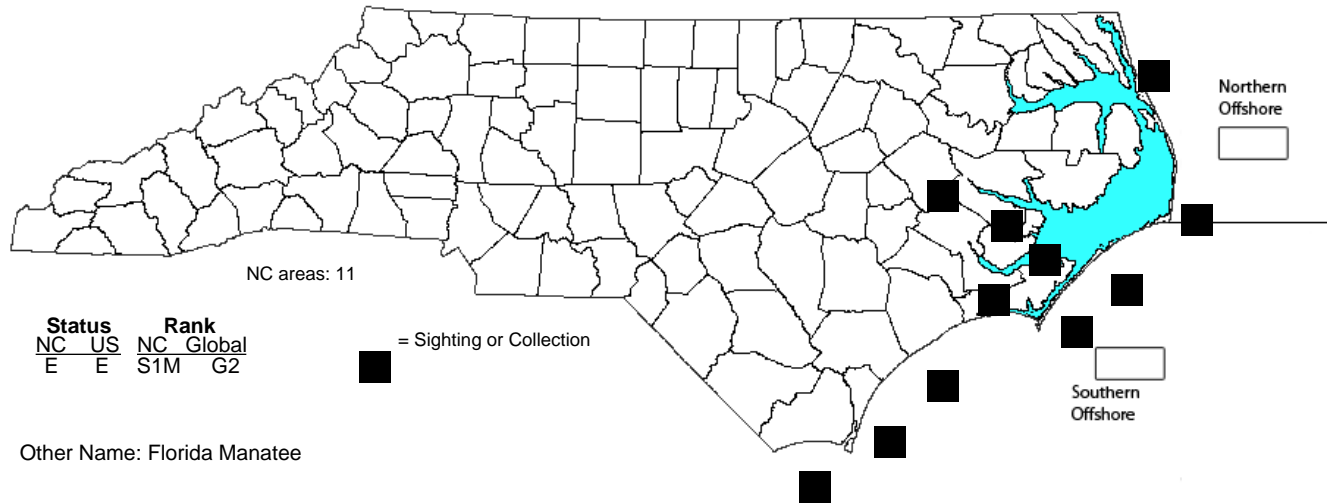
HABITAT: The offshore ocean, seldom seen from shore.

COMMENTS: This is a somewhat recently "split" species, as for most of the 20th Century this was called the Right Whale, found in both the North Atlantic and the South Atlantic, as well as the Pacific oceans. The main threats currently are entanglement in fishing lines and collision with ships/boats; formerly, it was heavily hunted, the main reason for the precipitous decline in the past 100-200 years.

STATUS: Native

LIST TYPE: Official

Trichechus manatus West Indian Manatee



DISTRIBUTION: Occurs essentially annually along the coast of NC, mainly along the southern third of the coast (Carteret County southward). Manatees tend to be seen inshore of the ocean, such as along the Intracoastal Waterway or other bays, estuaries, and lower portions of large rivers (at bay mouths), sparingly as far as New Bern. It has occurred also along the entire NC coast.

Occurs in warm waters along the Atlantic coast, sparingly as far north as the Chesapeake Bay area, but mainly from FL southward.

ABUNDANCE: Rare but essentially annual along the southern coast, with a few sightings in a given year. More frequent the farther south along the coast; not seen annually north of Cape Hatteras (where best considered very rare).

SEASONAL OCCURRENCE: Almost always in the warmer months of the year, as a visitor/stray northward from FL and other tropical waters.

HABITAT: In NC, favors brackish waters of estuaries, bays, and large river mouths; probably does much migration up and down the Intracoastal Waterway. Less frequently seen in the inshore ocean. Seldom or never seen up-river farther than the embayed portions, such as New Bern.

BEHAVIOR: This is a very tame and sluggish mammal, not afraid of swimmers or scuba divers. A moderate number are killed by speeding boats, farther southward.

COMMENTS: The species is also called the Florida Manatee. It is listed as Endangered by the U.S. Fish and Wildlife Service.

STATUS: Native

LIST TYPE: Official

North American Porcupine *Erethizon dorsatum*

Lee et al. (1982, p. 7) state that "There is some reason to suspect that the Porcupine and Fisher may have once occurred in the mountainous portions of North Carolina, but their presence in historic times cannot be substantiated." Kellogg (1939), in an "Annotated List of Tennessee Mammals", says "Mercer ... found the dried feces and quills of a porcupine in Bigbone Cave near Elroy, Van Buren County, Tenn. During the recent rearrangement of the mammal collection in the National Museum, a left mandible of an immature porcupine labeled as coming from 'a Tennessee cave', but with no other data, was found." Linzey (1995) says "Hall (1981) indicated that its range may extend through the mountains as far south as the Smokies. Jawbones of porcupines have been recovered from archaeological [sic] sites west of Chattanooga in Marion County, Tennessee".

Thus, though there is some evidence that Porcupines might have occupied the mountains of Tennessee into the 19th Century, there seems to be nothing on record of even sightings from North Carolina, much less reports of specimens or carcasses.

Swamp Rabbit *Sylvilagus aquaticus*

Unlike with the Porcupine, Snowshoe Hare, and the Fisher, there actually is an existing specimen of a supposed Swamp Rabbit. Lee et al. (1982, p. 39) state "We recently discovered in the collection of the North Carolina State Museum (NCSM 843) a male specimen of *S. [= Sylvilagus] aquaticus* from Clay County, N.C., which was erroneously labeled *S. floridanus* [= Eastern Cottontail]. The specimen was collected on 18 August 1956, 11 miles E of Hayesville by Tom Beadles (total length 429 mm, tail vertebrae 49 mm, hind foot 96 mm, ear 63 mm, weight 1042 g; skull not saved.) The specimen appears to be molting into adult summer pelage, but no other information is available."

The above information, from a species account for Swamp Rabbit in "A Distributional Survey of North Carolina Mammals", would seem to be a "slam-dunk" case for inclusion on the North Carolina state list. However, Dr. David Webster, at UNC-Wilmington, studied the specimen in the mid-1980's, and found it to be in very poor condition, such that he was unable to tell what it was. As a result, this species has not appeared on the N.C. Scientific Council on Mammals list of rare species. The N.C. Natural Heritage Program supports the decision of the Scientific Council in not considering the Swamp Rabbit to be convincingly documented for the state.

Snowshoe Hare *Lepus americanus*

Kellogg (1939), in an "Annotated List of Tennessee Mammals", says "Information received from local residents suggests that varying hares [i.e., Snowshoe Hares] were formerly present in the mountainous district extending from Mount Guyot to White Rock, Cocke County. These residents inquired if Perrygo had seen any of the rabbits that turned white in winter and made such long jumps when chased in the snow by dogs. He was told that they were usually 'jumped' from rhododendron thickets near the summits of the peaks. From repeated inquiries, Perrygo learned that these rabbits were very rare now but formerly were often seen during winter months by local hunters."

Several recent field guides and reference books not surprisingly include North Carolina and/or Tennessee as being at the southern edge of the species' range. However, neither state considers the Snowshoe Hare as being conclusively documented in the region, and the species certainly is extirpated over the past 150 to 200 years, if not longer.

Fisher *Martes pennanti*

According to Powell, in an article in the 1991 "Wildlife in North Carolina", "John James Audubon and the Reverend Bachman talked to hunters and trappers who had killed fishers in the North Carolina and Tennessee mountains; Bachman apparently saw carcasses or pelts of such fishers." He states that the "last records of fishers in the southern Appalachians date from the 1830s."

Though there seems little reason to doubt these excellent biologists, no specimens of Fishers from North Carolina or Tennessee are known to reside in any museum collection, and thus we have no conclusive evidence of their presence in these states.

**Listing of NC Mammals
by number of species (out of 120) per county**

Appendix B

Sorted Alpha		Sorted Numeric	
Alamance - 8	Madison - 24	Swain - 61	McDowell - 21
Alexander - 17	Martin - 16	Haywood - 57	Gaston - 21
Alleghany - 26	McDowell - 21	Macon - 53	Anson - 21
Anson - 21	Mecklenburg - 34	Buncombe - 53	Guilford - 20
Ashe - 37	Mitchell - 37	Wake - 50	Caldwell - 20
Avery - 39	Montgomery - 18	Watauga - 49	Tyrrell - 19
Beaufort - 33	Moore - 34	Transylvania - 48	Pitt - 19
Bertie - 28	Nash - 16	Gates - 45	Wayne - 19
Bladen - 38	New Hanover - 41	Yancey - 45	Montgomery - 18
Brunswick - 30	Northampton - 14	New Hanover - 41	Alexander - 17
Buncombe - 53	Onslow - 34	Avery - 39	Nash - 16
Burke - 35	Orange - 34	Clay - 38	Duplin - 16
Cabarrus - 12	Pamlico - 15	Camden - 38	Martin - 16
Caldwell - 20	Pasquotank - 8	Bladen - 38	Union - 15
Camden - 38	Pender - 29	Ashe - 37	Pamlico - 15
Carteret - 27	Perquimans - 13	Mitchell - 37	Hyde - 15
Caswell - 9	Person - 10	Durham - 36	Sampson - 14
Catawba - 23	Pitt - 19	Burke - 35	Richmond - 14
Chatham - 27	Polk - 12	Dare - 35	Northampton - 14
Cherokee - 31	Randolph - 23	Wilkes - 35	Franklin - 14
Chowan - 11	Richmond - 14	Orange - 34	Edgecombe - 13
Clay - 38	Robeson - 22	Onslow - 34	Lee - 13
Cleveland - 13	Rockingham - 29	Mecklenburg - 34	Cleveland - 13
Columbus - 29	Rowan - 9	Forsyth - 34	Lenoir - 13
Craven - 22	Rutherford - 30	Moore - 34	Perquimans - 13
Cumberland - 27	Sampson - 14	Harnett - 33	Yadkin - 13
Currituck - 28	Scotland - 9	Beaufort - 33	Polk - 12
Dare - 35	Stanly - 29	Henderson - 32	Cabarrus - 12
Davidson - 11	Stokes - 26	Cherokee - 31	Davidson - 11
Davie - 8	Surry - 30	Brunswick - 30	Chowan - 11
Duplin - 16	Swain - 61	Surry - 30	Warren - 11
Durham - 36	Transylvania - 48	Halifax - 30	Person - 10
Edgecombe - 13	Tyrrell - 19	Rutherford - 30	Granville - 10
Forsyth - 34	Union - 15	Rockingham - 29	Caswell - 9
Franklin - 14	Vance - 23	Stanly - 29	Rowan - 9
Gaston - 21	Wake - 50	Pender - 29	Scotland - 9
Gates - 45	Warren - 11	Columbus - 29	Wilson - 9
Graham - 24	Washington - 24	Hoke - 28	Pasquotank - 8
Granville - 10	Watauga - 49	Jackson - 28	Alamance - 8
Greene - 4	Wayne - 19	Currituck - 28	Davie - 8
Guilford - 20	Wilkes - 35	Bertie - 28	Jones - 7
Halifax - 30	Wilson - 9	Carteret - 27	Hertford - 4
Harnett - 33	Yadkin - 13	Cumberland - 27	Lincoln - 4
Haywood - 57	Yancey - 45	Chatham - 27	Greene - 4
Henderson - 32		Stokes - 26	
Hertford - 4		Alleghany - 26	
Hoke - 28		Johnston - 26	
Hyde - 15		Washington - 24	
Iredell - 21		Madison - 24	Number of Counties = 100
Jackson - 28		Graham - 24	
Johnston - 26		Vance - 23	
Jones - 7		Catawba - 23	
Lee - 13		Randolph - 23	
Lenoir - 13		Robeson - 22	
Lincoln - 4		Craven - 22	
Macon - 53		Iredell - 21	